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AMERICAN[®] WOODWORKER

#104 November 2003
www.americanwoodworker.com

Best New Tools for 2004

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Best New Tools for 2004

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Editor's Letter

What Every Shop Needs

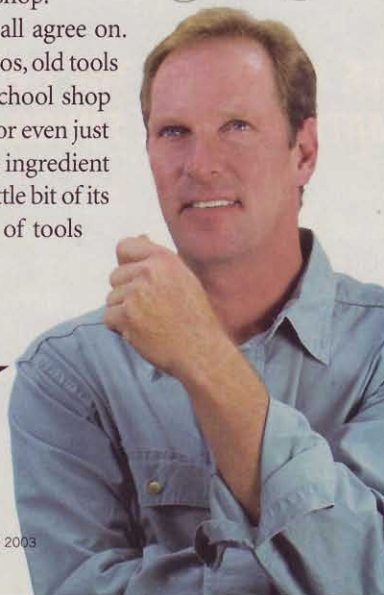
Take any random group of woodworkers, and you could get a pretty good argument going by asking everyone what every shop needs. Most people would say a well-adjusted tablesaw with a sharp, high-quality blade. But there are still plenty of folks who prefer a radial-arm saw. (Beats me why.) You'd get just about everyone to agree that a router is essential, although the rustic woodworkers and molding plane fans would say "No way!" Is there really any one thing that every shop needs?

One tool that would get my vote is a "moaning chair." My last shop had a great one—a hideous old recliner that looked like a wooly mammoth (especially with a decade of sawdust in it). It was ugly, but thoroughly broken in and enormously comfortable. This chair was just the place to collapse after I cut a board too short, made two left sides to a cabinet, or some other "oops." It was also the favorite spot for buddies to hang out, for my wife to sit and chat, and even for me to take an occasional nap. It was gross, it took up precious floor space, it was hard to clean, but it helped transform my shop from a merely practical workplace into a pleasant shop.

Maybe that's the one essential we could all agree on. Whether it's a comfortable chair, family photos, old tools we've restored, a dusty ribbon from high-school shop class, interesting junk waiting for a purpose, or even just bits and pieces of projects gone by—the one ingredient that every well-equipped shop needs is that little bit of its owner's personality that turns a room full of tools into your favorite place to be.

Ken

P.S. THAT'S
NOT ME, IT'S
A MODEL



AMERICAN WOODWORKER

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Question & Answer

What's a Pattern Rasp?

Q. A friend told me that a tool called a pattern rasp is a must-have for wood-working. What's so special about it?

A. A pattern rasp cuts aggressively but leaves a smooth surface. A standard wood rasp makes a rougher surface requiring additional filing because its teeth are set in rows. The teeth of a pattern rasp are set in a random pattern.

Pattern rasps cost almost four times as much as standard wood rasps, however. The higher cost is due in part to the complexity of manufacturing random-set teeth. But the real difference is the steel. Pattern rasps have hardened teeth made to handle material harder than wood. You can use a pattern rasp to shape brass, bronze, aluminum, mild steel and even ceramic tile. If you stick to wood, a pattern rasp will far outlast a standard wood rasp.

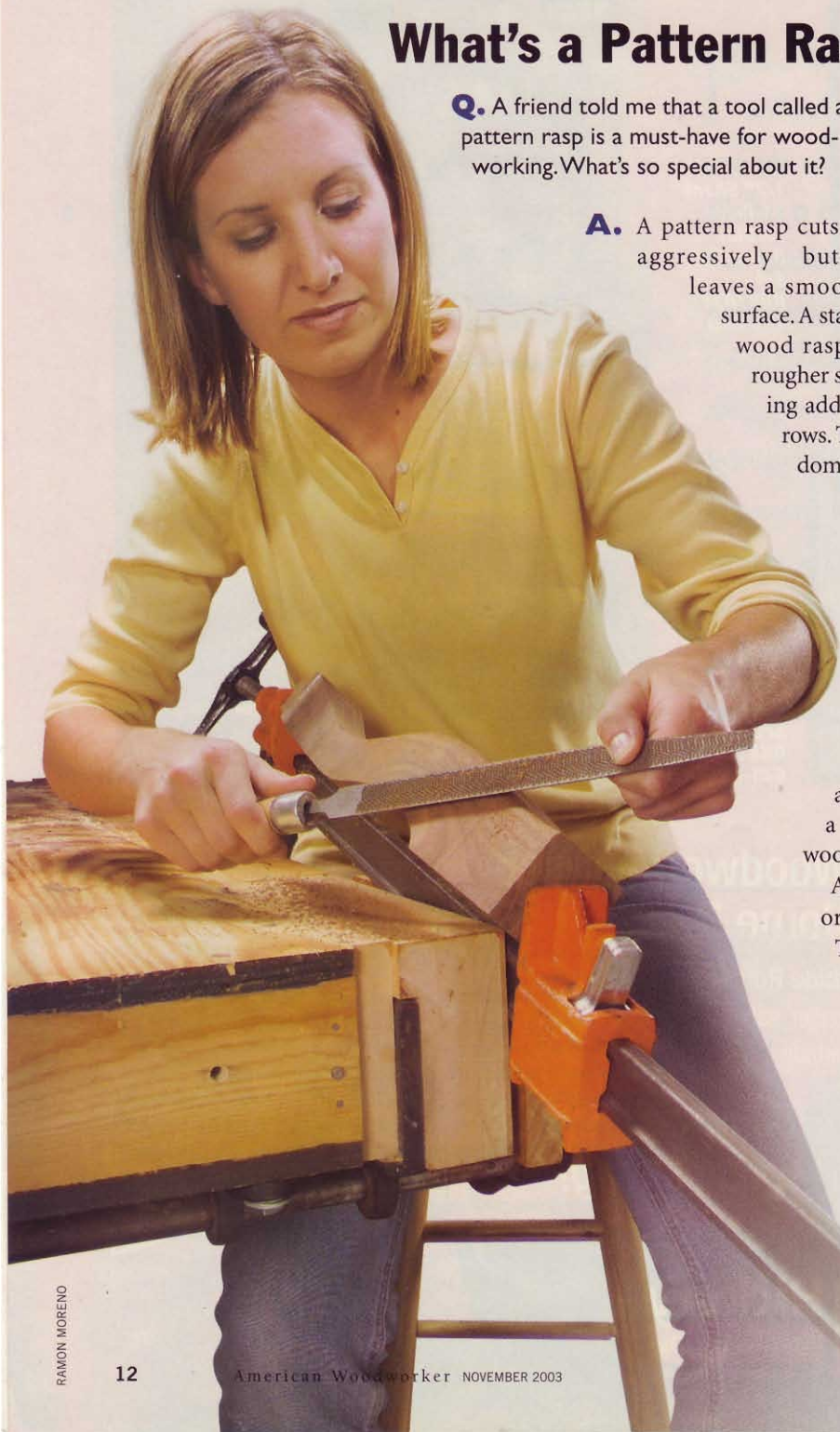
As their name suggests, pattern rasps were originally designed for pattern makers. These artisans build very precise wood patterns for casting metal machine parts.

Two types of pattern rasps are available, the #49 and the #50, which has finer teeth. The #49 is generally the best choice for woodworkers.

Source

Lee Valley Tools, (800) 871-8158
www.leevalley.com

#49 pattern rasp, #62W10.01; \$40
#50 pattern rasp, #62W11.01; \$47.





Moisture-Starved Glue Joint

Q. I built a project with MDF and polyurethane glue, but now it's coming apart. I thought this kind of glue was super strong. What did I do wrong?

A. Polyurethane glue is plenty strong for woodworking, but it can't be applied like good old yellow glue. Pete Ragland, head of the technical department at Gorilla Glue, recognized your problem immediately. Polyurethane glues need moisture to form a strong bond and MDF can be dry as dust. When you're gluing man-made materials or kiln-dried wood with polyurethane glue, Ragland says you must introduce moisture to the joint. He says the best way is to dampen one surface of the joint with a moist sponge. A single swipe is sufficient; too much moisture can cause MDF to swell. Apply polyurethane glue to the other surface and clamp the joint for three to four hours.

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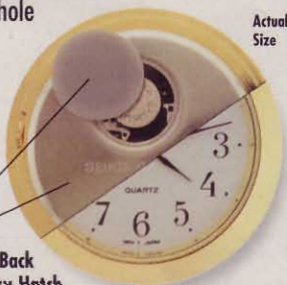
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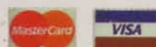
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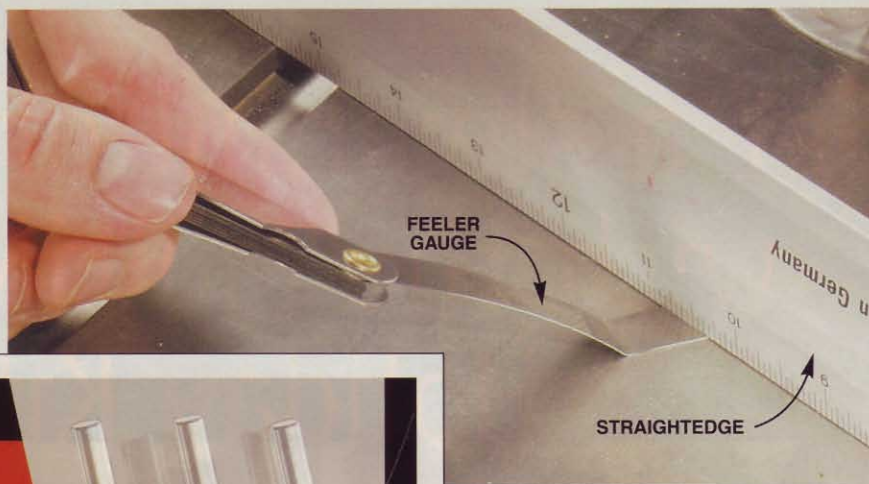
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Q. My new saw table has a dip of about .005 in. from side to side. Is that a problem or am I being too picky?

A. Relax. For most projects that little dip shouldn't make any noticeable difference. After all, once you've cut your wood it'll probably bend or twist that much anyway.

Most tablesaw manufacturers consider twice that error, or .010 in., the margin of acceptability. (That's equivalent to two thicknesses of the cover of this magazine.) If you've just bought a new saw that's out of flat by substantially more than this amount, such as .015 to .020 in., give the manufacturer a call.

To check your saw, you'll need a high-quality straightedge (see Source, below) and an automotive feeler gauge or our magazine cover. Feeler gauges have an assortment of steel blades with thicknesses precisely graduated in thousandths of an inch. They're available at all auto-supply stores.

AW

Source

MSC, (800) 645-7270
www.mscdirect.com
24" straightedge, #06518013; \$51
36" straightedge, #06518021; \$108.

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.

Workshop Tips

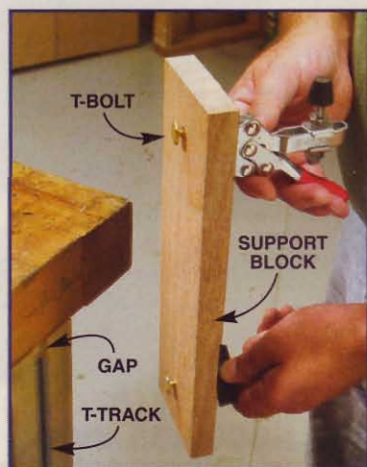
Rock-Solid Bench Support

The face vise on my workbench didn't hold long boards rigidly enough until I added this adjustable "bench slave." And it only cost about \$30.

First I milled a board to attach to the leg, making sure it was thick enough to fit flush with the front edge of the benchtop. Then I cut a dado right down the middle of the board, to house a piece of T-track (slotted aluminum track that accepts T-bolts; see Sources, below). When I installed the T-track, I left a gap at the top for installing and removing the support block.

Next I drilled two centered holes in the support block, one large enough for the T-bolt to slide through freely, the other small enough for the T-bolt to thread into. I attached a T-style knob to the free-sliding bolt and fastened a toggle clamp (see Sources, below) over the threaded-in T-bolt.

Dave McNeely



Installing and removing the support block is easy, thanks to a small gap for the T-bolts at the top of the T-track.

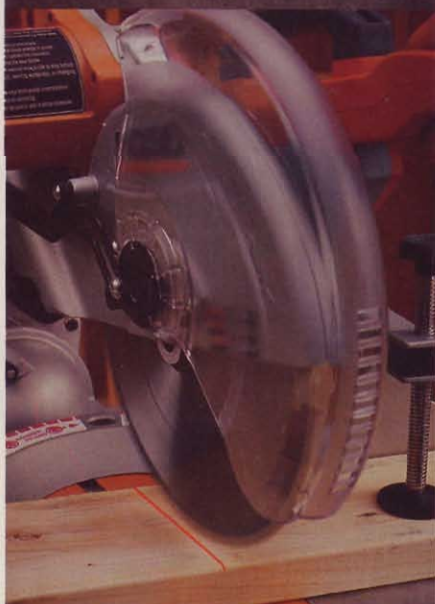


Sources

Woodcraft, (800) 225-1153
www.woodcraft.com
 128219 36" Mini-Track (T-track); \$13
 130435 1/4"-20 1-3/4"-L T-bolts (10 pack); \$6
 85J95 1/4"-20 Phenolic T-style knob; \$2.

Highland Hardware
 (800) 241-6748
www.highlandhardware.com
 166105 Toggle clamp; \$7.

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Workshop Tips

Bottoms-Up Glue Cup

Whenever I need a small amount of glue, I reach for a paper cup. And since I visit the neighborhood coffee shop every morning, I always have a supply of used cups!

But instead of filling the cup with glue, I turn it upside down. The indentation on the bottom holds enough glue for small glue-ups, and the inverted cup is very stable. When the job is done, I just throw the cup away.

Paul Lee



Photocopy Template

I used to hate hanging objects, like power strips, that have hidden T-slots on the back. No matter how carefully I measured, I could never get the mounting screws in the right place on the wall.

Then I realized that I could make a perfect full-size copy of the pattern on standard 8-1/2 by 11-in. paper using my scanner and printer (a photocopy machine would work, too).

I taped the pattern where I wanted to mount the power strip, drilled the holes and set the screws. Shazam! It worked perfectly.

Lee Miller



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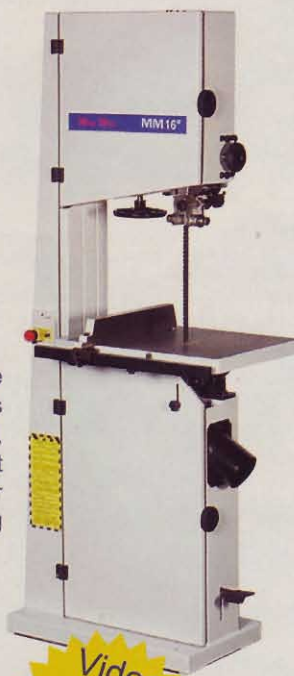
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Workshop Tips

Double-Duty Push Stick

To change the blade on my tablesaw, I used to wedge the front end of my push stick between the saw table and the blade teeth, so I could loosen or retighten the arbor nut. It worked, but the teeth always mangled the end of the push stick.

Then I realized that by cutting a saw kerf into the bottom edge of the



push stick, I could capture the blade securely during blade changes.

Adding the kerf is easy because I saw it while the bottom edge of the blank is still flat. First I trace the push stick profile on the blank, including the notch and heel at the bottom. Then I lower the blade below the saw table and set the rip fence to center the kerf in the blank. After making sure the kerf won't extend into the heel, I clamp the blank to the fence, turn on the saw and raise the blade about 1-1/4 in.

Mike Hofer
AW

If you have an original Workshop Tip, send it to us with a sketch or photo. If we print it, you'll get \$100! Send to: Workshop Tips, American Woodworker, 2915 Commers Drive, Suite 700, Eagan, MN 55121 or e-mail to workshoptips@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.

Small Shop Tips

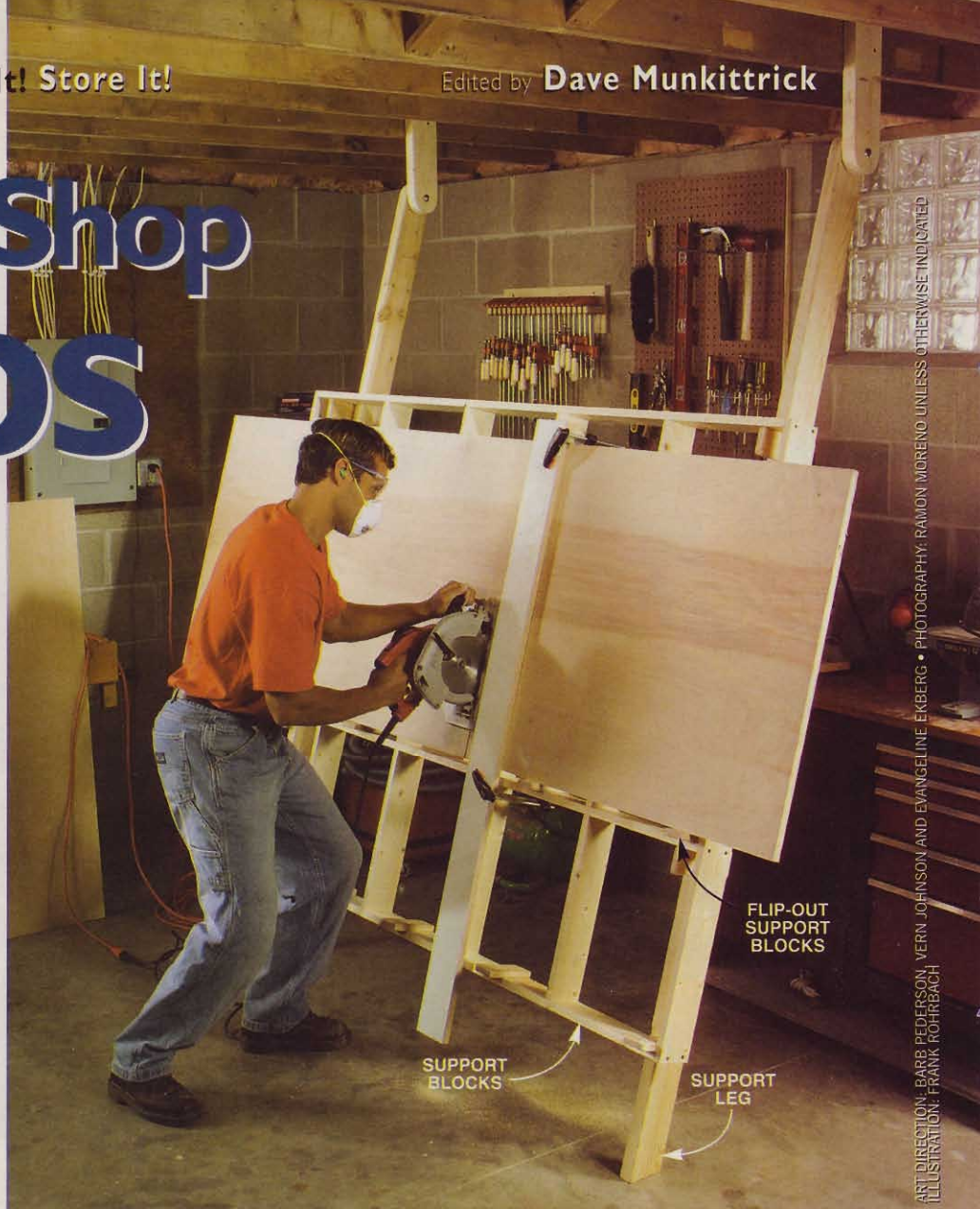
Fold-Down Cutting Rack

There was no room in my basement shop to cut full sheets of plywood. I always had to have the home center guy cut it down to size with his panel saw. What a hassle. I wanted my own panel saw, but I knew there was simply no room in my shop or budget. Then I came up with the solution: a lightweight, fold-down rack that stores up and out of the way on my shop ceiling.

When I've got sheet stock to cut, I fold down the rack and set the plywood on support blocks. Then I clamp on a straightedge as a saw guide. With my circular saw blade set to cut 1/8 in. deeper than the stock, I'm ready to go. For narrower sheets, I use the flip-out blocks in the middle of the rack.

Richard Tendick

The lightweight rack swings up for easy storage. A single 2x4 catch temporarily holds the rack in place. Two lengths of chain and a hook safely secure the rack over head.



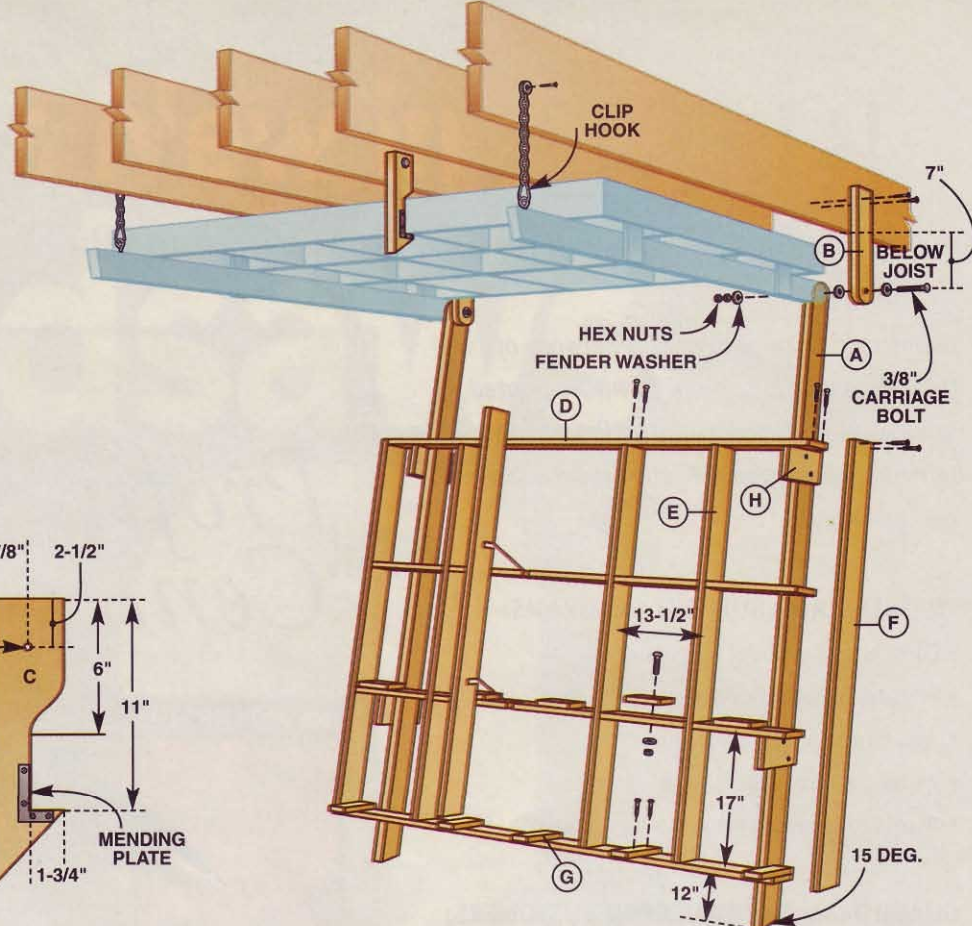
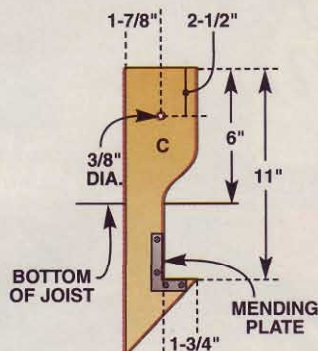
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ILLUSTRATION: FRANK ROHRBACH

Part	Name	Qty.	Dimensions
2x4s			
A	Legs	2	Cut to fit ceiling height
B	Brackets	2	1-1/2" x 3-1/2" x 15"
C	Hook	1	1-1/2" x 3-1/2" x 15"
1x4s			
D	Horizontals	4	3/4" x 3-1/2" x 70-1/2"
E	Verticals	4	3/4" x 3-1/2" x 52-1/2"
F	Ends	2	3/4" x 3-1/2" x 54"
G	Support Blocks	10	3/4" x 2" x 5"
H	Grid Cleats	4	3/4" x 3-1/2" x 7"

Fig. A

The Rack is Simple to Build

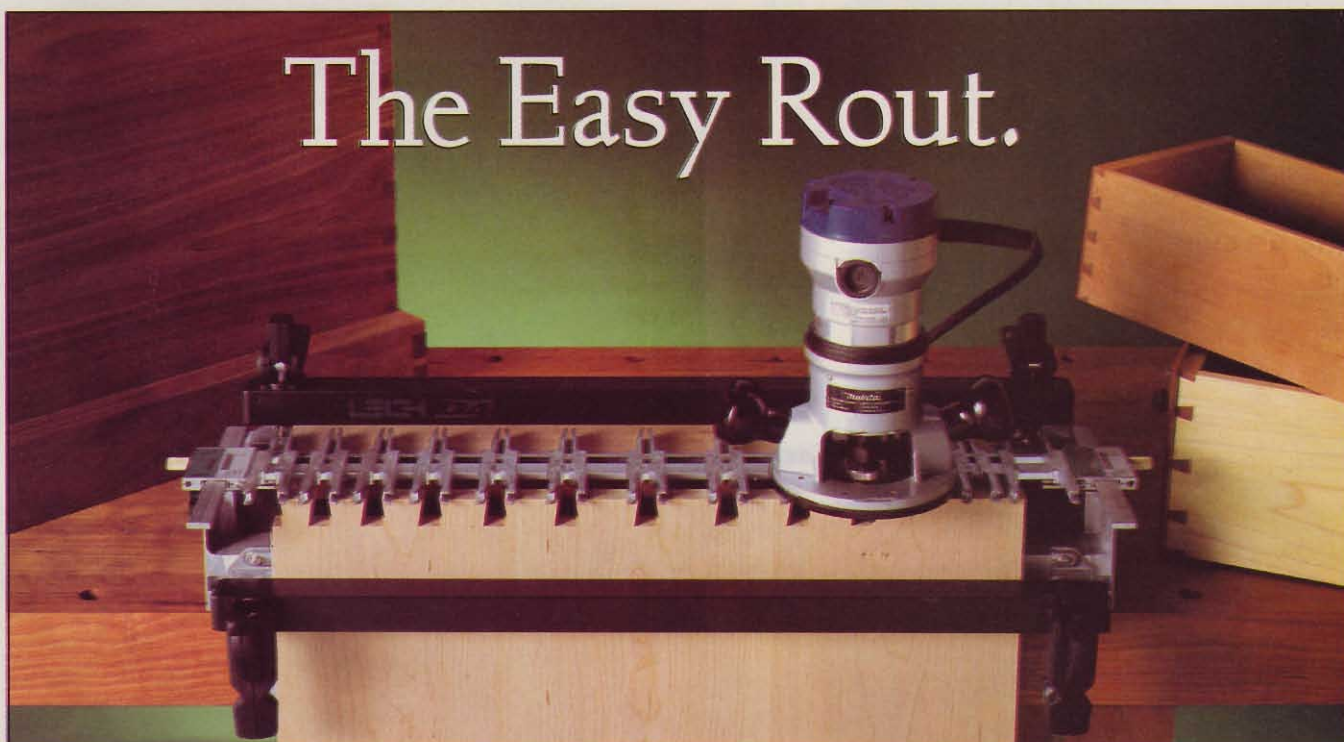
Notched 1x4s create a bed to support the sheet stock. Note the L-shaped mending plates that reinforce the short grain on the hook.



American Woodworker NOVEMBER 2003

27

The Easy Rout.



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Cabinet Door Clamp Rack

My burgeoning collection of spring clamps and small bar clamps was crying out for a storage solution. The doors on my shop cabinet offered just the place for hanging a couple simple racks for my wayward clamps. Just screw a 1x2 strip to the door for small bar clamps. A 45-degree bevel on one edge of a 1x2 makes a perfect rack for my spring clamps.

Duane Johnson



Storage Hang-Up

I'm a neat freak and I jump at any idea that keeps stuff off my bench. I built a glue bottle perch for my pegboard just for that reason. It's just a couple of boards with a cutoff section of PVC pipe screwed to the back and a pair of holes for the peg hangers. The PVC ring keeps the bottle secure on its perch. The glue bottle loves it's new home above the fray on my bench. I've expanded the idea to include my biscuit container and I'm making one for my coffee cup next.

David Radtke

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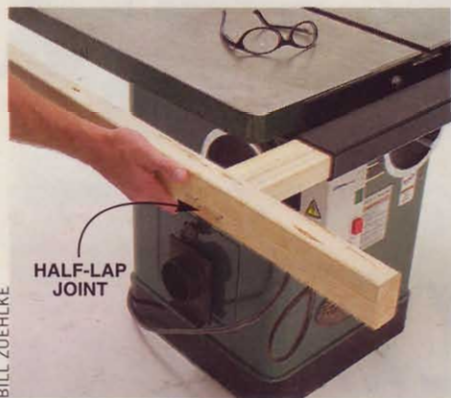
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Self-Storing Tablesaw Support

My outrigger support is just the ticket for cutting full sheets of plywood in my small shop.



BILL ZUEHLKE



BILL ZUEHLKE

If you own a T-square-style fence, or even one with a round tube, you can build this crosscut support in a few minutes. I milled a 2x4 to fit inside the support tube for my fence. (Use closet pole stock if your fence support is round.) Half-lap joints are strong and easy to build. When you're done cutting, the support slides and stores up flush against the saw.

Vern Tator



Get the Clutter Off Your Bench

I found a new place to store dispensers right under my nose. Any lightweight stuff that comes in a box can be fastened to the bottom of a cupboard and still leave plenty of room over the counter below. A little double-faced tape or hot-melt glue makes a strong but temporary bond.

Judy Rodriguez

The Delta Edge These miter saws even cut you a \$50 rebate.



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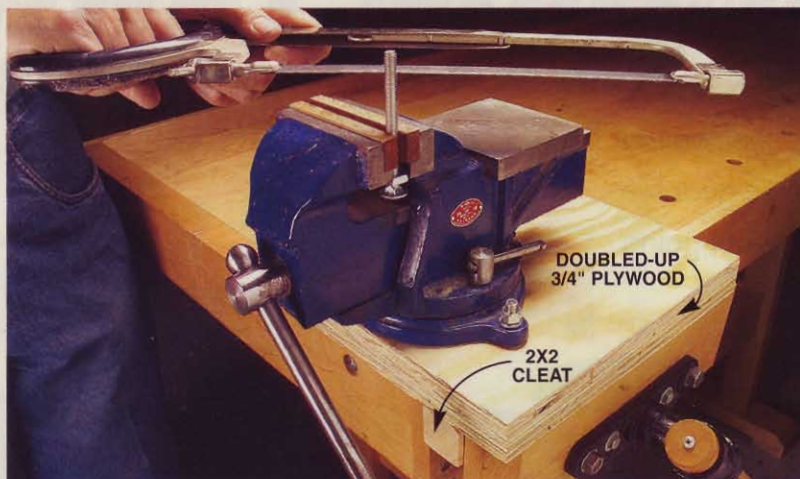
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Mobile Machinist's Vise

A little metalworking finds its way into my woodshop from time to time. When cutting metal, it's best to use a machinist's vise to get a better grip. Because it sticks up and is in the way, I can't permanently attach it to my woodworking bench. Instead, I built a simple platform from doubled-up 3/4-in. plywood with a 2x2 cleat screwed to the bottom. The platform allows me to temporarily mount my vise to my bench when needed. It spends the rest of the time on the shelf below the bench.

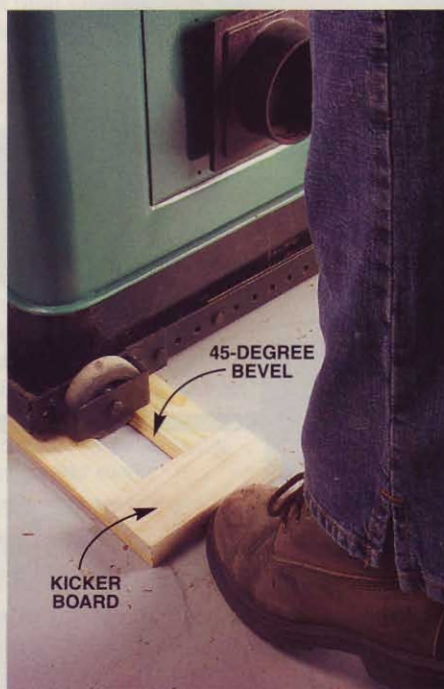
Travis Larson

Kicker Chock Block

I love the convenience of mobile bases, but I hate it when they wobble on the floor even when they're locked down. I got my chock block idea at the airport where the ground crews use something similar for parked aircraft. My chock block locks the fixed casters on my mobile bases so they don't budge. It's a great improvement.

Jeff Gorton

AW



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 your tip 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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DELTA

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The Well-Equipped Shop

Each summer the woodworking tool manufacturers roll out their new products for the coming year at two gigantic shows. Here's the gear we saw there that really got us excited about going back to our woodshops this winter.

By George Vondriska

Multi-Purpose Router

Porter-Cable has taken the wraps off a long-awaited redesign of their classic 690 series router. The new 890 series has taken a giant leap forward in recognizing that woodworkers love their router tables, and want a router that's designed to be used in one.

The 890 is available as a fixed-base router for \$200. For another \$50, you can buy a kit that adds a plunge base. We love interchangeable-base kits because you can leave the fixed base in the router table and use the plunge base for hand-held work. With this setup, one router motor can do just about everything.

Changing bits and adjusting their height is easy with the 890 mounted in the router table. It's all done from above, so there's no need to remove the router body. You can also access the locking lever from above, so the only time you have to reach under the table is to turn the router on and off.

A 12-amp, variable speed 2-1/4-hp motor powers the 890. This is just what you need for running bits larger than 1-3/8-in. diameter, such as panel raisers in a router table. The motor slowly ramps up to speed with a soft-start feature, terrific for those big bits. Electronic feedback ensures that the motor

maintains a constant speed under load.

The 890 is unusual in that it has two switches. One is located down low, by the collet, so you can turn the router on and off without letting go of the fixed-base handles. That's a great safety feature. When you put on the plunge base, though, you can only use the second switch, located on top of the router.

Replace one of the 890's handles with the GripVac (\$29, not shown) and

you've got a convenient D-handle with built-in dust collection. Connect a vacuum hose to the top of the handle in order to pull dust through the base.

If you've already got a 690 base setup in a jig or router table, you'll be happy to know that the new 890 motor will fit.

Source

Porter-Cable, (800) 368-1487
www.porter-cable.com
890 fixed-base router; \$200
895PK (includes plunge base); \$250, GripVac; \$29.

Best



New Tools for 2004

Shim-Free Dado Set

Fine-tuning the width of a stackable dado head with shims can make you dance the Hokey Pokey. You put a shim in, take a shim out, make a test cut, and pull your hair out! Freud's new 8-in. dado head, the SD608 Dial-A-Width (S230) does away with shims altogether. Instead, there's an adjustable hub on the outer blade.

Rotating the hub changes the width of the dado cut. As you turn the hub, each click indicates that you've moved the position of the outer blade by .004 in.; a little more than the thickness of a dollar bill. For smaller adjustments you can lock the hub in-between click positions. One full rotation of the hub moves the outer blade by 1/32 in.

No matter what the setting, the Dial-A-Width cuts a flat bottom dado. Dialing the hub doesn't tilt the outer blade; it just moves it in and out. That's an entirely different principle than a wobble-type adjustable dado head, which does tilt the blades and doesn't cut a flat bottom.

The Dial-A-Width works on both right- and left-tilt saws. To keep it accessible, the hub can go on either the right or left outside blade.

Source

Tool Crib of the North, www.toolcrib.amazon.com
Dial-A-Width Dado, SD608; \$230.



Adjustable Pocket Hole Jig

The new Pocket-Pro Joinery System from CMT (\$140) picks up where many other jigs leave off. They're designed for 3/4-in.-thick pieces, but the Pocket-Pro is adjustable to correctly position a pocket hole in material anywhere from 1/2- to 1-3/4-in. thick.

The trick to making a strong pocket hole joint is to get the screw to exit in the middle of the board. As a board gets thicker, the pocket hole has to be drilled farther from the end to keep the screw centered. CMT's solution is to mount the drill guide on a base with a toothed rack, and index the rack in 1/8-in. increments. It's easy to fine-tune the setting for a board of almost any thickness simply by raising or lowering the drill guide.

The Pocket-Pro kit includes a toggle clamp and base, a pair of stepped drill bits and a stop collar, two square-drive bits and a quick-release clamp.

Source

CMT
(888) CMT-BITS,
www.sommerfeldtools.com
Pocket-Pro, PP002; \$140.





Heavy-Duty Storage

Isn't the piece of wood you want usually on the *bottom* of your huge wood pile? Anybody who collects odds and ends of wood like a pack rat could use the WoodRack storage system from Triton (\$70). Unlike most heavy-duty shelving, this one uses low-profile arms to divide up the most stuff in the least amount of space. Each level can hold up to 110 lbs.—that's about 40 bd. ft. of red oak per level.

The WoodRack is easy to install. All you have to do is secure the standards to studs in your wall with lag bolts. (The lag bolts aren't included.) The kit includes spacers that go between the standards and the wall to compensate for irregularities.

The WoodRack comes with two vertical standards and 12 support arms, enough for six levels. The standards are 41-in. high and the arms are 12-3/4-in. long. The spacing between the arms is 7-1/2 in. By simply moving a setscrew or leaving out a support arm you can modify the spacing.

Source

McFeely's, (800) 443-7937

www.mcfeelys.com

Triton WoodRack WRA 001; \$70.

New Line of Portable Tools

If you shop at The Home Depot, you're probably familiar with Ridgid stationary power tools. Starting now, you'll also see an entire new line of Ridgid portable power tools. You'll find cordless and corded drills, random orbit sanders, a finish sander, jigsaw, circular saw, reciprocating saw and an angle grinder.

Three X2 series cordless drills, 12-, 14.4-, and 18-volt, cost from \$169 to \$259. They all have a 1/2-in. chuck, two speeds, a 24-position clutch and come with two batteries. The chuck has an automatic spindle lock for one-handed tightening and loosening of bits. The batteries recharge in half an hour, which

is exceptionally fast.

The Ridgid R2600 random orbit sander (\$80) has a speed range from 7,000 to 12,000 rpm, comparable to other sanders. It also has electronic feedback to maintain speed when the motor is operating under a heavy load. This sander accepts both hook-and-loop *and* pressure-sensitive sandpaper. For dust control, you can use a bag or connect to a vacuum that has either a 1-1/4- or 2-1/4-in. hose. This machine also has a conveniently long 12-ft. cord.

Source

Ridgid Tools, The Home Depot or
(800) 474-3443, www.ridgid.com

Cordless drills: R82015 12 volt; \$169

R83015 14.4 volt; \$199; R84015 18 volt; \$259

Random orbit sander, R2600; \$80.



Rugged 14-in. Bandsaw

If you've ever stood a wide oak board on edge and ripped it in half on a 14-in. bandsaw, you know what it's like to push a tool to the max. Laguna's new 14-in. saw, the LT14SE, (\$1,095) is built to handle a heavy load like that with ease.

A bandsaw needs extra power, rigidity and capacity to resaw big boards. With more power, you can keep up a reasonable feed rate, and this saw is driven by a 240-volt, 2-hp motor. (Most 14-in. bandsaws have a 1- or 1-1/2-hp motor.) The Laguna is built with a stiff, welded-steel frame to make a smoother cut. (Most saws have cast-iron frames, which flex more under load.) The LT14SE can handle boards up to 12-in. wide, as is. (An additional riser kit is necessary to bring most 14-in. saws up to this capacity.)

The LT14SE's wheels are wide enough to turn a 1-in. blade. Maximum blade size on many 14-in. machines is 3/4 in. The wider the blade, the straighter the cut, because a blade's stiffness increases with width. To get the longest life out of a blade, this saw uses low-friction ceramic guide blocks. (For a closer look, see page 79). A fence is included with the saw, but the stand is a \$80 accessory.

Source

Laguna Tools, (800) 234-1976
www.lagunatools.com
 LT14SE; \$1,095
 Stand; \$80.





Best New Tools for 2004

Blank Tape Measure?

Whoever invented this tape is a genius! One half of the tape is blank—a perfect example of less is more.

The blank strip under the numbers on the PSSP-16 tape from FastCap (\$6.50) is for ticking off your own direct measurements with a pencil. Rather than measure the width of a cabinet, for example, and write it down incorrectly, you simply make a mark on the ruler itself.

This innovative tape also has an exceptionally readable scale, with all the fractions spelled out. In addition, there's a blank space on the body that's a note pad on which you can record measurements. And finally, did we mention that there's a built-in pencil sharpener? Wow!

Source

FastCap, (888) 443-3748, www.fastcap.com
TriTape PSSP-16 16-ft. tape measure; \$6.50
TriTape PSSP-25 25-ft. tape measure; \$9.50.





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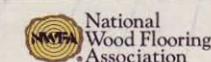
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Turn Logs Into Lumber

Have you ever dreamed of taking a project from tree to finish by milling your own wood? The new chainsaw-based Woodworkers Mill from Logosol (\$1,995, without the chainsaw) can help make the dream come true.



This could be the most expensive woodworking tool you own, but few things can save you more money on wood. It's also pretty cool to salvage wood destined for a landfill, or stockpile unusual species that aren't available commercially.

Portable saw mills aren't new, but the Logosol is exceptionally easy to move around, even deep into the woods. It fits in the back of a small truck and only weighs 85 lbs. It will cut logs 4- to 8-ft. long, weighing up to 1,100 lbs. The maximum log diameter depends on the length of the chainsaw's bar. Logosol recommends using a saw with at least a 5-hp. motor. They also sell a model that includes a chainsaw (\$2,795).

One problem you'll run into is hoisting the log up onto the 20-in.-high cutting platform. You'll need either some strong help, lifting equipment, a ramp, or all of the above.

Source

Logosol, (877) 564-6765, www.logosol.com
The Woodworkers Mill, without a chainsaw; \$1,995
with a Husqvarna Husky 385XP chainsaw; \$2,795.

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Specifications

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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Miter Stand Kit

Want a plan for a solid miter saw stand on wheels? Get the steel parts from Rousseau (\$129) and add the wood parts yourself.



The Model 2850 includes a metal frame, locking casters and the hardware to put it all together. To make the shelves and folding wings, you'll need a little less than one full sheet of plywood or particleboard.

When you're done, you'll have a miter saw stand that takes up little space but can handle large jobs. With the wings folded down, the stand measures only 19 by 33 in. It's easy to roll into a corner of your shop, out of the way.

When you're ready to cut, roll the cart in place, lock down the wheels and pop up the wings. Each wing is 36-in. long and 15-in. deep. With the wings raised, the stand is 8-ft. long. The wings can accommodate a fence with stop blocks, a must-have feature for cutting long material.

The stand is designed to fit almost any size saw, even a huge slider. The height of the main table is fully adjustable, so you can fine-tune the alignment of your saw with the folding wings.

Source

Rousseau Co, (800) 635-3416
www.rousseauco.com
Miter Saw Stand, Model 2850; \$129.

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www.arrowfastener.com ©2002 Arrow Fastener Co., Inc. Rev 702

Smart Drum Sander



Drum sanders can be big time savers, but if you're not careful you can burn through an awful lot of expensive sandpaper. The latest version of a classic drum sander from Performax, the 22-44 Plus (\$999 without stand), incorporates an electronic feedback device that takes some of the aggravation out of fine-tuning the depth-of-cut setting. This device, called SandSmart, was previously only available on much more expensive drum sanders.

To use SandSmart, you turn the variable speed control to the top rate at which you want your work to feed through the machine. If that speed begins to overload the drum as you sand, SandSmart kicks in and automatically slows down the machine's conveyor belt. It continually monitors the load on the drum and subtly adjusts the feed rate.

The 22-44 Plus is a 22-in. cantilevered drum that sands material up to 44-in. wide, in two passes. We recommended this machine as an Editors' Choice in AW# 93, April 2002, before the addition of the SandSmart system. The machine's 1-3/4 hp motor runs on 110-volts,

but requires a dedicated 20-amp circuit. Accessories include infeed and outfeed tables (\$100) and casters (\$90). The 22-44 Plus on an open stand goes

Best New Tools for 2004

for \$1,099. With the closed stand shown at left and casters, it's \$1,199. **AW**

Source

Performax, (800) 274-6848, www.jettools.com
22-44 Plus, without stand, \$999.

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TYPE OF TOOL	BUYING BASICS	TOOL TEST	SPEC CHART
Bandsaw	Buying Basics	Tool Test	Spec Chart
Cordless Drill	Buying Basics	Tool Test	Spec Chart
Dado Blades	Buying Basics	Tool Test	
Dovetail Jig		Tool Test	
Drill Press	Buying Basics	Tool Test	Spec Chart
Drum Sander	Buying Basics	Tool Test	Spec Chart
Dust Collector	Buying Basics	Tool Test	Spec Chart
HVLP Sprayers	Buying Basics	Tool Test	
Jointer	Buying Basics	Tool Test	Spec Chart
Lathe	Buying Basics	Tool Test	Spec Chart
Mini-Lathes	Buying Basics	Tool Test	Spec Chart
Miter Gauges		Tool Test	Spec Chart
Miter Saw	Buying Basics	Tool Test	Spec Chart
Moisture Meters		Tool Test	
Mortiser	Buying Basics	Tool Test	Spec Chart
Planer	Buying Basics	Tool Test	Spec Chart
Plate Joiner	Buying Basics	Tool Test	Spec Chart
Portable Sander	Buying Basics	Tool Test	Spec Chart
Router	Buying Basics	Tool Test	Spec Chart
Router Tables		Tool Test	
Scrollsaw	Buying Basics	Tool Test	Spec Chart
Sharpening Machines		Tool Test	
Shop Vacuums		Tool Test	
Spindle Sanders		Tool Test	
Tablesaw	Buying Basics	Tool Test	Spec Chart

Jet and DeWalt Sliding

*The pros and cons of two fine saws
designed for the small shop*



The DeWalt DW 746X has been on the market for three years. It was the first left-tilt, 120-volt saw with an integral sliding table. The basic saw with 30-in. rails sells for \$900. Add the sliding table and the price is \$1,350. Move up to 52-in. rails plus the sliding table for \$1,470.

A great tablesaw can really make a shop hum. A few years ago, DeWalt came out with a new left-tilt saw that had an inboard motor and a sliding table, features

with genuine appeal to a small-shop woodworker (Photo 1). The inboard motor makes the saw more compact than a contractor's saw, and the sliding table is terrific for

cutting up plywood. Even without the sliding table, we gave the DW 746X an Editors' Choice award in our tool test (AW #96, October 2002, page 36).

Tablesaws

By Tom Caspar



2 The Jet SuperSaw is brand new this year. Like the DeWalt, it's a 120-volt left-tilt saw with an inboard motor and integral sliding table. With 30-in. rails, but no table, it sells for \$850. With the accessory sliding table, it costs \$1,200. A version with 52-in. rails and a sliding table is available for \$1,300.

Last year, after the test, Jet introduced the SuperSaw (Photo 2). It has many of the same features as the DeWalt, for about the same price (see Chart, page 50).

Readers have been asking us, "What's the difference between 'em?" The quick answer is that both perform equally well, but there are small quirks in both saws that

could tip the balance in your buying decision. First let's take a look at the pros and cons of a sliding table, then we'll go into more detail about each saw's features.

Sliding Table

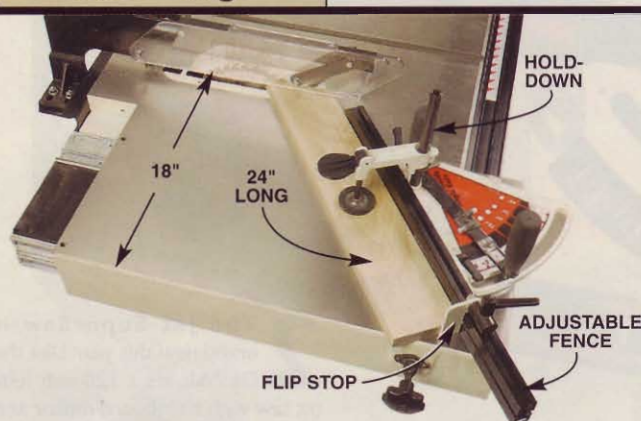


3 Crosscutting a wide panel is a cinch with both the Jet and DeWalt saws. With a sliding table, the entire left wing of the saw travels back and forth, giving you up to 24 in. of capacity. A special miter gauge is bolted to and slides along with the table.

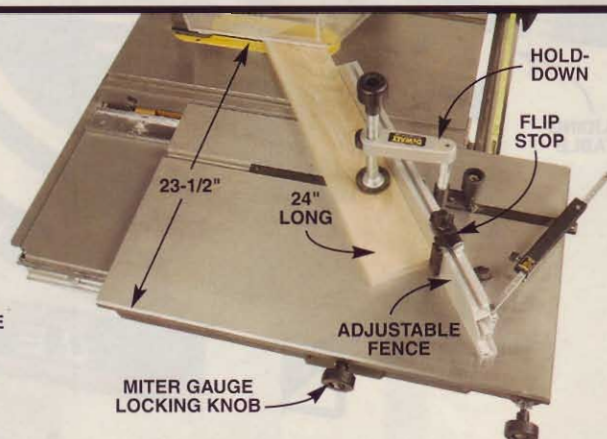


4 Converting to rip cuts is easy with both saws. Lock the sliding table, remove the miter gauge and you're all set. The blade guard and splitter stay in place for crosscuts and rip cuts, a huge safety benefit of both tablesaws.

Miter Gauge



5 Jet's miter gauge bolts directly to the sliding table. It's got a hold-down (to keep the workpiece from sliding), an adjustable fence with T-slots and a flip stop.



6 DeWalt's miter gauge locks into a slot on the table and is easier to remove than the Jet miter gauge. Both the Jet and DeWalt miter gauges are as accurate and solid as an expensive aftermarket miter gauge—another benefit of a saw with a sliding table.

Why Have a Sliding Table?

A sliding table is most useful for cutting panels for plywood projects, but it's mighty handy for all crosscuts, wide or not. On both saws, it's a massive piece of cast iron that rides back and forth on two sets of ball-bearing slides. A special miter gauge is fastened directly to the sliding table and moves along with it (Photo 3). For rip cuts, you remove the miter gauge and lock down the sliding table by simply turning a knob (Photo 4).

Does a sliding table make accurate cuts? Yes. Each sliding table on the saws

we tested ran as true as a good shop-built crosscut sled (see AW #75, page 38 for sled plans). It made very straight, burn-free cuts.

A sliding table is more convenient and more versatile than a homemade crosscut sled. After all, it's built-in and ready to go at any moment. With safety in mind, you don't have to remove the blade guard to make a crosscut. Plus, it will cut miters. A bulky crosscut sled, on the other hand, can be a pain to take on and off a saw and is difficult to store. You must remove the guard every time you install the sled, and it

can't cut miters.

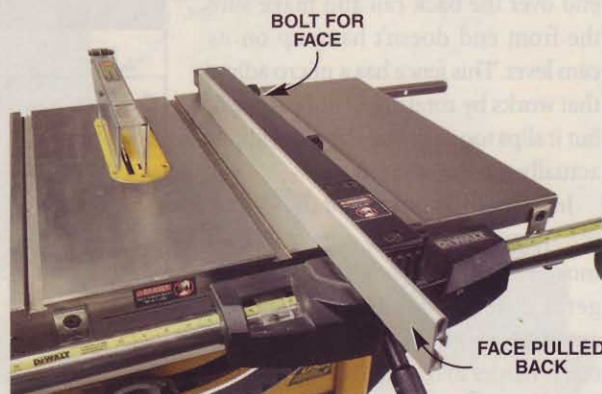
There are two major disadvantages to a sliding table, however. First, there's the price tag. Both saws cost about \$400 more when you add the sliding table. A shop-made crosscut sled, on the other hand, costs about \$50. Second, you must install the sliding table on the new saw. Setup and alignment are fussy on both saws. We also found that the table goes out of whack if you grab it to move the saw around your shop.

Both saws can cut 24-in.-wide panels with their sliding tables. For supporting

Fence

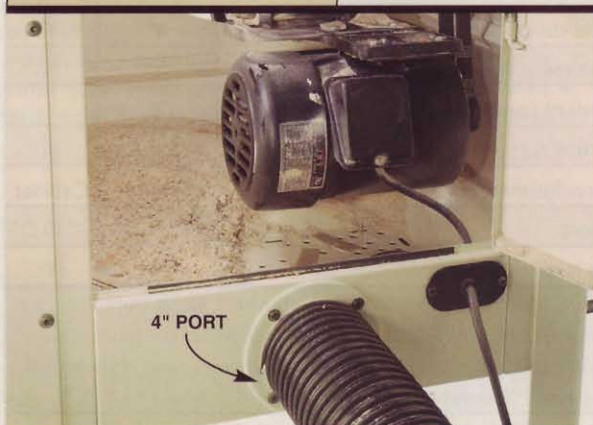


7 The SuperSaw's fence has a rubber wheel micro-adjust and T-slots for mounting a wooden subfence or featherboards. The fence works well, but the magnified cursor is more of a hindrance than a help. It's too easy to make a mistake when reading it.

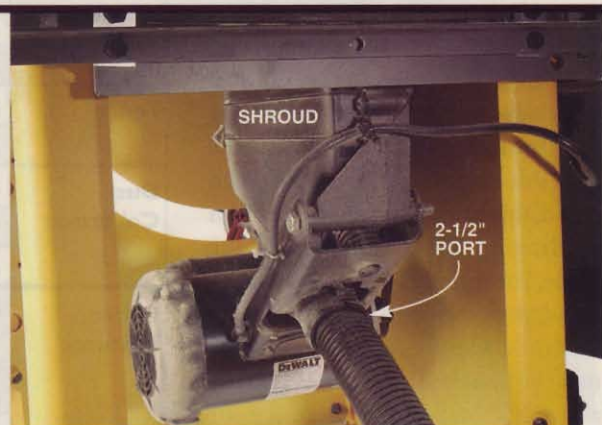


8 DeWalt's fence has an aluminum face that can be pulled back for more support in front of the blade when cutting large sheets of plywood. To install a sacrificial wooden face you must unscrew the aluminum face and remove a clamping bar assembly.

Dust Collection



9 Jet's enclosed cabinet keeps most of the sawdust from flying around your shop. It's got a 4-in. dust collection port, but the cabinet is so large that a lot of dust settles out without going through the holes in the base of the cabinet and down the hose.



10 DeWalt shrouds the blade and directs dust toward a 2-1/2-in. port, sized for a shop vacuum hose. If you don't hook up a hose, the sawdust can be directed into a separate box or bag.

long stock left of the blade, DeWalt has 5 in. more width than Jet (Photos 5 and 6). For short stock, Jet's hold-down is 5 in. closer to the blade than DeWalt's.

Miter Gauges

Both sliding tables come with souped-up miter gauges, equivalent to premium aftermarket miter gauges that sell for \$100 or more.

Two rigid handles securely bolt the Jet miter gauge to the sliding table (Photo 5). They're a bit awkward to unscrew, remove and keep track of when you take off the gauge for rip

cuts. The head of the miter gauge can tilt right or left, but you must re-mount the gauge to change direction. The miter gauge has adjustable 45- and 90-degree stops. Intermediate angles are easy to set with a hairline cursor, but they're not indexed.

Tightening one knob locks the DeWalt miter gauge anywhere along a standard miter slot, making it very easy to remove for rip cuts (Photo 6). The head tilts right and left and has positive stops at 15, 22-1/2, 30, 45 and 90 degrees, both ways. The stops are automatically set once you calibrate

the 90-degree setting. We found that the fence flexes from top to bottom, however. This flex did not affect the accuracy of cuts in 3/4-in. stock, but can produce a rougher surface on the end of very thick or dense boards.

Fences

A good fence is a must-have on a table-saw. Both saws have fairly decent ones, but they suffer from too many complications. The Jet fence is the familiar box-style with additional T-slots (Photo 7). It slides and locks down well, but mounting it takes some get-

ting used to. You must hook the far end over the back rail and make sure the front end doesn't hang up on its cam lever. This fence has a micro adjust that works by rotating a rubber wheel, but it slips too easily on the rail without actually moving the fence.

Jet's fence has one major drawback: the magnified bubble cursor. If you move your head just a little bit, you'll get a different reading. This is an annoyance with many cursors, but this one is harder to read than most because it distorts numbers and hash marks on either side of the hairline.

The DeWalt fence, like the Jet, slides and locks down well, but it also has an awkward hook on the back. Mounting the front is easy, though. The non-magnified cursor and rule are easy to read.

The DeWalt fence has an unusual detachable face (Photo 8). You can pull back the face so its far end stops at the back side of the blade. For ripping solid wood, this helps prevent boards from binding on the splitter behind the blade. For ripping large pieces of plywood, you get more support in front of the blade. On the downside, the face must be unbolted and removed to use a jig that straddles the fence, or switched to the other side if you must rip on the left side of the blade.

Dust Collection

Most contractor's saws throw clouds of dust out the back and bottom, but both of these saws have effective dust collection systems built right into them.

Jet has a cabinet (Photo 9), and DeWalt uses a shroud around the blade (Photo 10). The floor of Jet's cabinet is punctuated with holes to prevent small offcuts from clogging your hose or damaging the impeller of your dust collector. On the DeWalt, offcuts can get stuck in the port and reduce the effectiveness of a shop vacuum. However, you can prevent offcuts from entering the shroud by using a zero-clearance throat plate.

DeWalt DW 746X and Jet SuperSaw			
		DeWalt	Jet
Cost	Price of saw, 30" rails, no sliding table	\$900	\$850
	Price of saw with 30" rails and sliding table	\$1,350	\$1,200
Specs	Voltage	120	120
	HP	1-3/4	1-3/4
	Left tilt	Y	Y
	52" rails available	Y	Y
	Cast-iron right wing	N	Y
	Number of handwheel turns to tilt blade 1 deg.	0.7	0.5
Sliding Table	Crosscut 24-in. panel	Y	Y
	Support left of blade	23-1/2"	18"
	Distance from right edge of table to blade	7-1/4"	4-1/8"
Miter Gauge	Adjustable 45-deg. and 90-deg. stops	Y	Y
	Hold-down	Y	Y
	Adjustable cut-off flip stop	Y	Y
	Positive stops at common angles	Y	N
Fence	Easy to adjust parallel to a miter slot	Y	Y
	Easy-to-read cursor	Y	N
Dust Collection	Type of enclosure for dust	Shroud	Cabinet
	Size of port	2-1/2" I.D.	4" O.D.
	Captures large offcuts	N	Y
Other Features	Jet: On/Off switch can be positioned anywhere along front rail; light on switch indicates power is on; micro-adjust wheel for fence; saw table is 31" deep without fence, but externally mounted blade guard sticks out 3-1/2" behind saw.		
	DeWalt: Large Off switch at knee level; can loosen and tighten blade with two wrenches; saw is 31" deep without fence, but blade guard does not stick out from back; sliding table requires outriggers at foot of base.		

Our Recommendations

The Jet SuperSaw ranks right up there with the DeWalt as a fine choice for a home shop. The sliding tables on both saws work very well and add a huge amount of crosscut capacity in a small amount of space. Their features are so similar that you may as well go with the saw that has the best sale price or most complete package deal.

Each saw has a minor weakness, however. On the SuperSaw, it's a hard-to-read cursor on the fence. Every time you set the fence for a rip cut, you have

to look twice to make sure you've got it right. On the DeWalt, it's the sliding table miter gauge. Simply by grabbing it, you can rock it forward and backward, and that can lead to a rough surface on crosscuts of thick wood. **AW**

Sources

Jet
(800) 274-6848, www.jettools.com

DeWalt
(800) 433-9258, www.dewalt.com

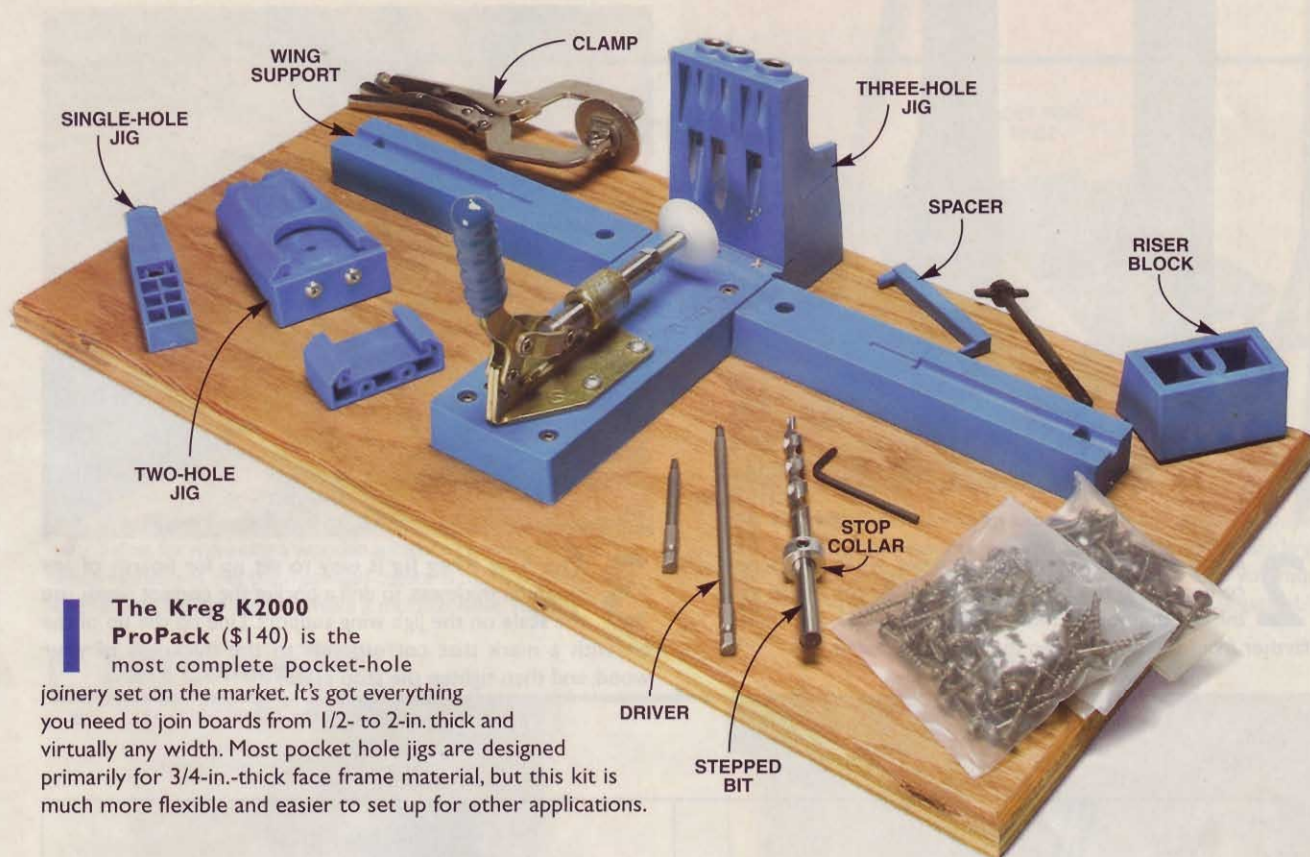
Do-It-All Pocket Hole Jig

Pocket screws aren't just for face frames anymore. They'll go anywhere with this new jig from Kreg.

For speed and ease of use, it's hard to beat pocket screws. All you need is a drill, some screws and a jig to make low-angle holes.

Pocket hole jigs have come a long way since they were first introduced in 1989 for face frames. Pocket screws worked so well that woodworkers tried using them for more and more applications. Unfortunately, the jigs weren't versatile enough. Now there's one package of jigs that covers all the bases, the \$140 K2000 ProPack from Kreg.

By George Vondriska



The Kreg K2000 ProPack (\$140) is the most complete pocket-hole joinery set on the market. It's got everything you need to join boards from 1/2- to 2-in. thick and virtually any width. Most pocket hole jigs are designed primarily for 3/4-in.-thick face frame material, but this kit is much more flexible and easier to set up for other applications.

What is a Pocket Hole?

Pocket holes are used to join boards with screws set at a very shallow angle. They're one of the fastest ways to assemble face frames, but they're also strong enough for most plywood case work, table rails, mitered corners, and on and on.

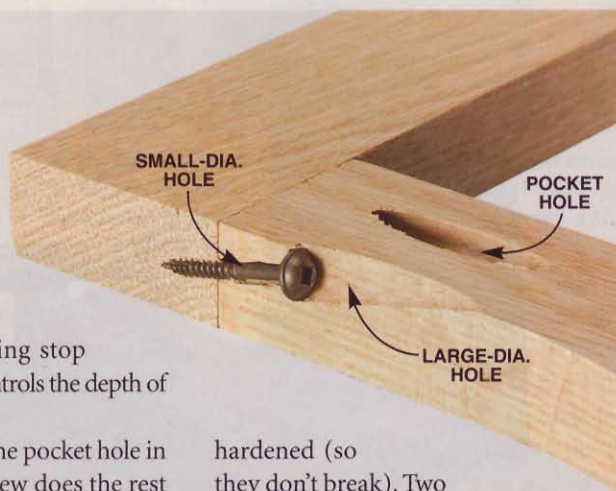
The trick to making a pocket hole is drilling the shallow-angle hole in exactly the right place. There are many ways to do it, but a jig is by far the easiest. Its hardened guide bushings ensure that the drill bit doesn't wander.

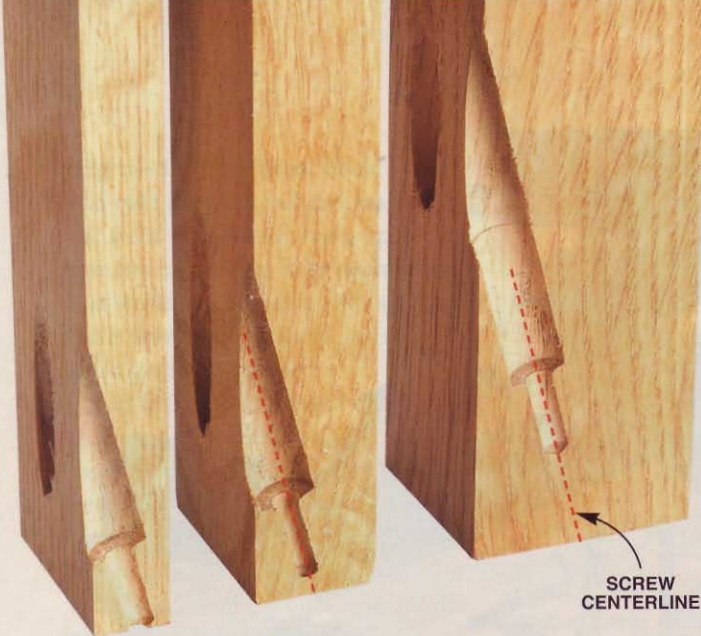
A pocket hole has two parts. First there's a large-diameter hole for the screw head to pass through. Below that is a small-diameter hole to guide the screw through to the end

of the board. All pocket hole jigs use a special stepped drill bit to make both holes at once. A tight-fitting stop collar on the bit controls the depth of the hole.

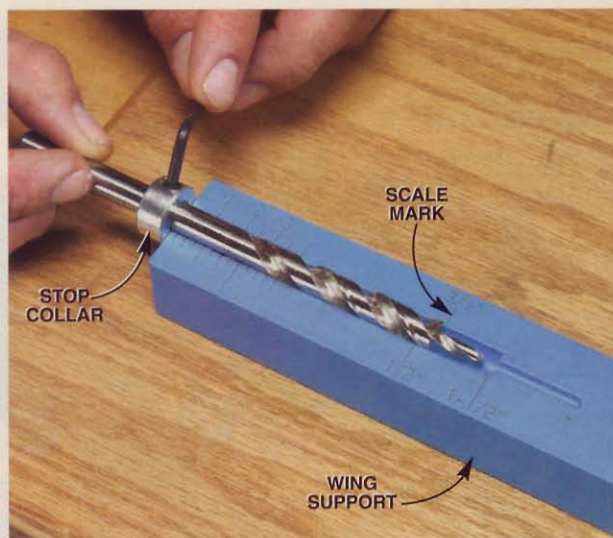
After you drill the pocket hole in one board, the screw does the rest of the work. You don't have to drill a pilot hole in the second board. Pocket hole screws are specially designed for this job. They have a thread-cutting tip (that's why you don't have to drill a pilot hole), they're very slim (so the second board doesn't split), and they're

hardened (so they don't break). Two thread types are available: Fine-thread screws are best for hardwood and coarse-thread screws are best for softwood or man-made material. In a pinch, you can use regular or drywall screws, but there's a greater chance the wood will split.

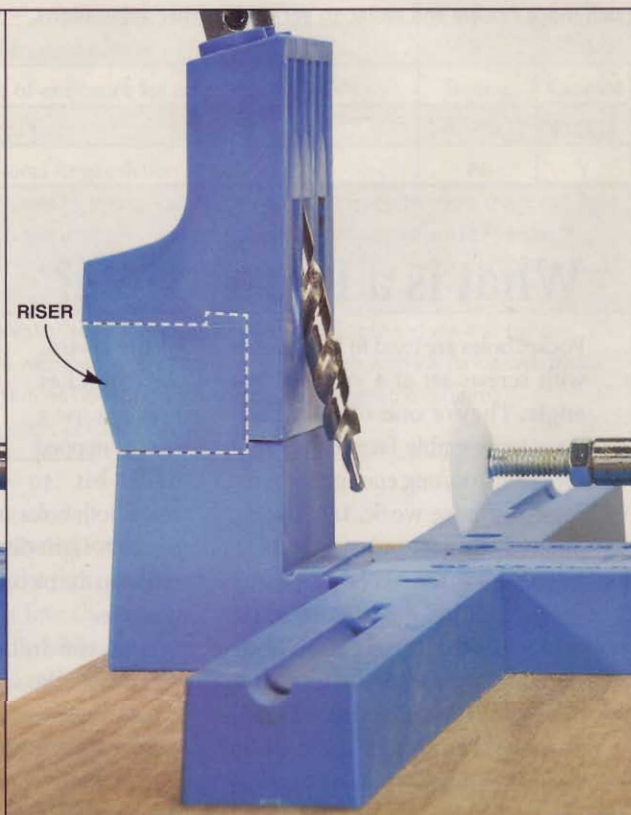




2 A pocket-hole joint is strongest when the screw comes out in the center of a board. As the board gets thicker, the pocket must be drilled deeper and shifted farther from the end to keep the screw centered.

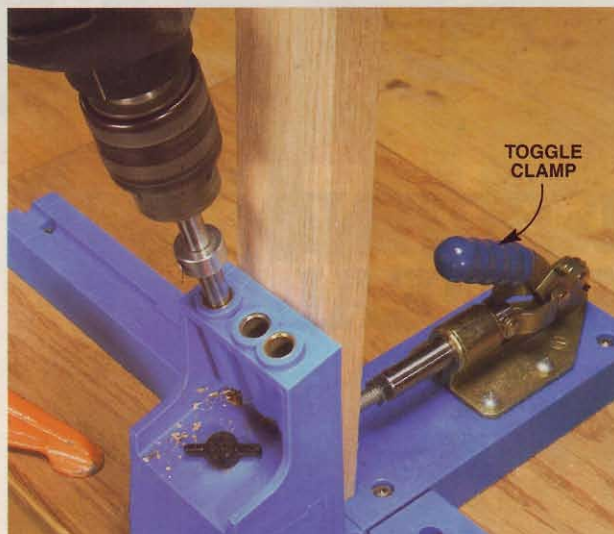


3 The new Kreg jig is easy to set up for boards of any common thickness. To drill a pocket the correct depth, use the scale on the jig's wing support. Line up the tip of the bit with a mark that corresponds to the thickness of your wood, and then tighten the stop collar.

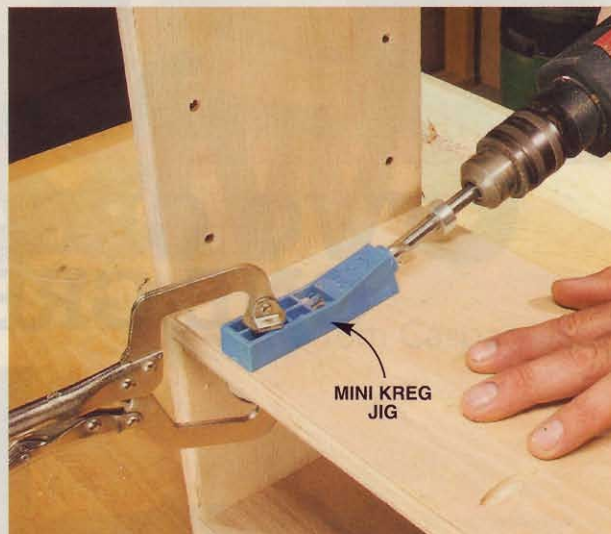


4 The drill guide can be set up three different ways to center pocket holes in material of different thickness. At left, the jig is arranged to drill holes in 3/4- to 1-in.-thick material. At right, for thicker boards, there's a riser under the guide

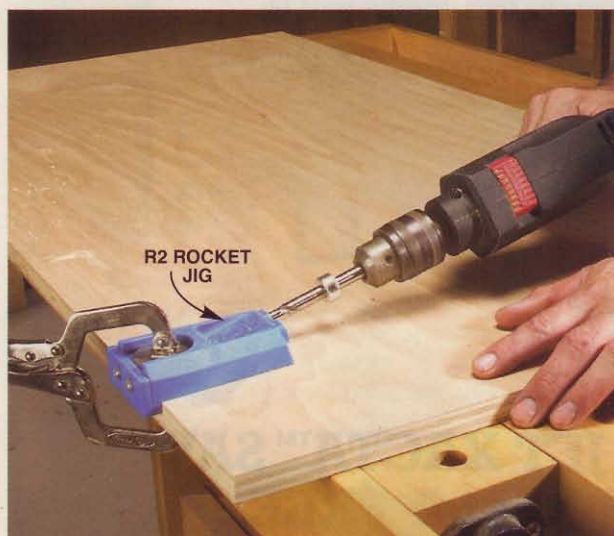
block that raises the pocket hole. For thin boards, use the normal arrangement and drop a spacer (not shown) on top of the jig's base. The guide block and riser are keyed and bolted together so the jig remains perfectly rigid in every position.



5 Both wide and narrow boards are easy to drill with the K2000. It's got three guide holes, rather than the standard two, for more spacing options. With one push on the fast-action toggle clamp, you can drill two pocket holes in 1-1/4- to 3-3/4-in.-wide boards, the typical range of face-frame stock. Wings on either side of the guide block support boards that are wider yet. To drill holes spaced far apart, un-clamp the workpiece, slide it into a new position on the wings, and re-clamp it.



6 Sometimes you get into a situation that the standard Kreg jig won't handle. If you have to add individual pocket holes after a project is partially assembled, pull out the Mini Kreg jig from the K2000 kit. Use a square to position the jig, snap on the clamp, and you're good to go.



7 When you're joining large panels, bring the jig to the panel, rather than the panel to the jig, and double up the screws. That's the idea behind yet another useful part of the K2000 kit; the R2 Rocket. It's got two guide holes spaced 7/8-in. apart and a two-position stopper for centering pocket holes in 3/4- and 1-1/2-in.-thick material. In addition, the stopper automatically squares the jig to the material. The R2 Rocket is also available separately for \$60.



8 Tight joints are routine with the Kreg system. First, lock the parts together with the Kreg clamp. It holds the parts perfectly flush and is adjustable to fit boards up to 2-in. thick. Second, drive in the self-tapping pocket hole screws. The kit comes with a sample pack for you to try out. (A bag of 100 from Kreg typically costs \$3.) They've got square-drive heads and an unthreaded shank below the head. The square-drive recess allows you to run the screws home without the bit slipping. The unthreaded section allows the rail to be pulled absolutely tight against the stile. **AW**

Source

Woodworker's Supply, (800) 645-9292, www.woodworker.com, #102-893, Kreg K2000 ProPack, \$140. #934-925, R2 Rocket, also sold separately for \$60.

Cordless Combo Kits

Save 20% or more on a matched set of tools

by Tom Caspar

"More cordless tools for less money!" Don't your ears perk up when you hear those words? That's the siren song of cordless tool sets that come in a case or a bag, otherwise known as combo kits. What kind of kit is right for the woodshop? Let's take a closer look.

What is a Combo Kit?

Many portable power tools are now available in a cordless version (Photo 1). Combo kits contain two to five cordless tools (all of the same voltage), two batteries and one charger. There are literally dozens of kits on the market containing different combinations of tools and accessories (see Chart, page 61).

The combo kit is a classic package deal. The more tools you buy, the less each tool costs. But the really big savings come in another way: all the tools in a kit run off the same two batteries and charger (Photo 2).

The Woodworker's Combo Kit

Here's the mix of cordless tools we'd pick for a home woodshop (Photo 3, page 62):

Drill/Driver

It's an essential tool for drilling holes and driving screws. Some tools have an additional hammer drill function for boring holes into masonry.

Jigsaw

This tool can do lots of jobs that a bandsaw can't, like cutting internal holes or complex shapes on large pieces of plywood (Photo 4, page 62).

Circular Saw

It's primarily a tool for carpentry work, but a circular saw is useful for breaking down full sheets of plywood before going to the tablesaw. It's also handy for crosscutting rough lumber into shorter lengths (Photo 5, page 62).

Saw Performance

A cordless jigsaw performs just about as well as its corded cousin. A typical 18-volt jigsaw can cut about 150 ft. of 1/2-in. plywood on one charge.

A cordless circular saw is clearly not as powerful as a corded model. Theoretically it can do the job, but a cordless circular saw should not be your first choice for building an entire deck or garage. A typical 18-volt



Cordless versions of portable power tools are made by many manufacturers. In addition to the tools shown here, you can buy a cordless pad sander, brad nailer and hand planer, with more in development.



2 Save 20 percent and more on cordless tools by buying a combo kit—a set of tools sharing two batteries and one charger, all of the same voltage. A combo kit takes up much less space than individual tools by eliminating extra batteries and chargers.

Woodworking Cordless Combo Kits				Street Price ◊	Drill	Circular Saw	Jigsaw	Recip. Saw	Light	Other Tools and Details
Power-Tools*	Volts	Brand	Model							
2	14.4	Black & Decker	FSC314B-2	\$130	X	X				5-3/8" circ. saw blade
2	14.4	Bosch	92614DC	\$300	X	X				5-3/8" circ. saw blade
2	14.4	DeWalt	DW928KS-2	\$240	X	X				5-3/8" circ. saw blade; compact model drill
2	14.4	DeWalt	DW983KS-2	\$300	X	X				5-3/8" circ. saw blade
2	14.4	Grizzly	G8593	\$90	X				X	Detail sander
2	14.4	Skil	2567-08	\$100	X	X				5-3/8" circ. saw blade
2	15.6	Panasonic	EYC135NQKW	\$380	X	X				5-3/8" circ. saw blade
2	18	Bosch	93618DC	\$400	X	X				6-1/2" circ. saw blade
2	18	DeWalt	DW987KS-2	\$380	X	X				6-1/2" circ. saw blade
2	18	DeWalt	DW988KS-2	\$390	XX	X				6-1/2" circ. saw blade
2	18	Grizzly	H0603	\$130	X	X				5-1/2" circ. saw blade
2	18	Hitachi	KC18DB2	\$375	X	X			X	6-1/2" circ. saw blade
2	18	John Deere	ET-3801-J	\$380	X	X			X	6-1/2" circ. saw blade
2	18	Milwaukee	0902-24/28	\$340	XX	X				6-1/2" circ. saw blade
2	18	Ryobi	DJ218	\$140	X		X			
2	18	Skil	2892SK	\$150	X	X				5-3/8" circ. saw blade
2	19.2	Craftsman	11436	\$160	X	X			X	Fluorescent light; 5-1/2" circ. saw blade
2	19.2	Porter-Cable	9884CS	\$280	X	X				6" circ. saw blade
2	19.2	Porter-Cable	9884JS	\$500	X		X			
3	14.4	Black & Decker	FSC414K-2	\$160	X	X		X	X	5-3/8" circ. saw blade
3	14.4	Bosch	92614DJP	\$400	X		X			Planer
3	14.4	Bosch	92614DCJF	\$450	X	X	X		X	5-3/8" circ. saw blade
3	14.4	Grizzly	G8594	\$100	X		X			Detail sander
3	18	Black & Decker	FSC418K-02	\$189	X	X		X	X	5-3/8" circ. saw blade
3	18	Bosch	93618DJP	\$500	X		X			Planer
3	18	Bosch	93618DCRF	\$500	X	X		X	X	6-1/2" circ. saw blade
3	18	Chicago Electric	45803	\$140	X	X		X	X	5-3/8" circ. saw blade
3	18	DeWalt	DW4CPK2	\$400	X	X		X	X	5-3/8" circ. saw blade; compact model drill
3	18	DeWalt	DW4KIT-2	\$500	XX	X		X	X	6-1/2" circ. saw blade
3	18	Hitachi	KC18DE	\$400	X	X		X	X	6-1/2" circ. saw blade
3	18	John Deere	ET-3802-J	\$550	X	X		X	X	6-1/2" circ. saw blade
3	18	Makita	DK1052DL	\$520	X	X		X	X	6-1/2" circ. saw blade
3	18	Milwaukee	0923-29	\$560	XX	X		X	X	6-1/2" circ. saw blade
3	18	Milwaukee	0923-25	\$630	XX	X		X	X	Radio; 6-1/2" circ. saw blade
3	19.2	Craftsman	11432	\$190	X	X		X	X	Fluorescent light; 5-1/2" circ. saw blade
3	19.2	Porter-Cable	9884RJS	\$400	X		X			Router
3	19.2	Porter-Cable	9887QP	\$570	XX	X		X	X	6" circ. saw blade
4	18	Bosch	93618HDCRF	\$530	XX	X	X	X	X	6-1/2" circ. saw blade
4	18	DeWalt	DW5KIT-2	\$630	XX	X	X	X	X	6-1/2" circ. saw blade
4	18	DeWalt	DW5KITV3	\$700	XX	X	X	X	X	Vehicle charger; 6-1/2" circ. saw blade
4	18	Makita	DK1032DL	\$830	XX	X	X	X	X	Blower/vacuum; 6-1/2" circ. saw blade
4	19.2	Craftsman	11438	\$290	X	X		X	X	Stapler/nailer; stud finder; LaserTrac level; rolling toolbox; 5-1/2" circ. saw blade
5	18	Delta	CL180WWK	\$270	X	X	X		X	Brad nailer; pad sander; 5-1/2" circ. saw blade
5	18	Ryobi	CK818K2	\$300	X	X	X	X	X	Chainsaw; wet/dry vacuum

*Number of tools does not include light

XX = Drill/Driver/Hammer Drill

◊ Street Price: The prices given here are assembled from many sources, including the Web site www.amazon.com.

Prices vary widely by distributor and may change without notice. Call the contact numbers below for your nearest distributor.

Contact: Black & Decker, (800) 544-6986. Bosch, (877) BOSCH-99. Chicago Electric, (800) 423-2567. DeWalt (800) 4-DEWALT.

Delta (800) 438-2486. Grizzly, (800) 523-4777. Hitachi, (800) 829-4752. John Deere, (866) 993-3373. Makita, (800) 462-5482.

Milwaukee, (800) 729-3878. Panasonic, (800) 338-0552. Porter-Cable, (800) 487-8665. Ryobi, (800) 525-2579. Skil, (877) 754-5999.

3 Three cordless tools that are sensible additions to a woodworker's home shop are a drill/driver, circular saw and jigsaw. Few kits with just this combination of tools are available today, however, but more kits are coming in this rapidly expanding field.



saw can cut about 100 2x4s on one charge.

Cordless circular saws come equipped with super-thin-kerf carbide blades. This kind of blade makes the most efficient use of the tool's power in two ways. First, cutting a thin kerf removes less material and requires less power than cutting a wider, standard kerf. Second, carbide teeth stay sharp longer than steel teeth, and that affects power usage, too. A dull blade requires much more power than a sharp one.

The Voltage Dilemma

Cordless tools in combo kits come in four voltages. The higher the voltage, the more torque or power you get, and the heavier the battery. Unfortunately, the ideal combination of power and weight is different for drill/drivers, jigsaws and circular saws. For example, you might prefer a lighter weight 14.4-volt drill but need the extra power and capacity of an 18-volt circular saw. See the dilemma? You can't mix and match voltages in a combo kit.

Circular saw blade sizes vary with voltage. In general, lower voltage saws have smaller blades (see Chart, page 61). With the blade set at 90 degrees, 5-3/8 in. and larger saws will crosscut a 2x4. But you'll need at least a 6-in. saw to cut 2x4s at a 45-degree bevel.

Supplements, Not Replacements

Cordless tools are not going to replace corded tools—at least, not yet. First, we've already noted that they're not as powerful. Second, cordless tools are often heavier than corded versions because they carry the extra weight of a battery. For jigsaws and circular saws, though, the workpiece supports the tool, so weight is not as much of an issue. Third, cordless tools shouldn't be run continuously. The tool itself will be okay, but the battery will get very hot, and that prematurely shortens its life.

In spite of all that, cordless tools are mighty convenient in the woodshop, around the house and out in the yard. Consider them as supplementing your corded tools, not replacing them. **AW**



4 Turning corners with a jigsaw is a lot easier when there's no cord to get tangled up. Cordless jigsaws have most of the same features as corded models, including orbital action and tool-free blade release.

5 Rough-cutting hardwood boards and plywood is mighty convenient with a cordless circular saw. Just pick up the tool and go! It's not really a replacement for a corded model, however, which has more power and can run continuously.



Working Alone

with

*Tips for taming those awkward
and heavy sheets.*

Woodworking alone is peaceful, serene and quiet. Just you, the radio and your project. It's also a pain in the posterior when you have to work with big, heavy sheets of plywood, MDF or particleboard. If you can get help, it's great, but often we end up battling them alone. Here are some tips to help ease the struggle, save your back, and make your cuts go more smoothly and accurately.

A flip-up side for your shop cart

A handy addition to your shop is a cart with a flip-up side. Build it from plywood, with strong hinges on the top edge, a track on the lower edge of the folding side, and a semi-circular cutout at the bottom. Weight your cart with a bag of sand or concrete mix, so it doesn't tip over. To use this contraption, lift one corner of your plywood, slide it on the track (good side out) and wheel the cart to the front of your tablesaw. Lift the flip-up side, slide the plywood onto the top of the cart (the semi-circular cutout lets you grasp the bottom edge of the sheet), and you're ready to feed it into the saw. No more awkward gyrations trying to carry the plywood, flip it over, and then hold it steady while you try to line it up with the fence.



By Jean Bartholome

Plywood

How much does it weigh?

If you're working with sheet goods, it's handy to know how much they weigh. Here are the most useful numbers:

- Hardwood plywood typically weighs around 55 lbs. per 3/4-in.-thick sheet. Utility plywood can be much heavier, however. A 3/4-in.-thick sheet of BC fir plywood, for example, can weigh more than 70 lbs. By comparison, a full sheet of 1/4-in. birch plywood weighs only 12 lbs.

- MDF is typically a whopping 96 lbs. per 3/4-in.-thick sheet.

Ugh. The suggested maximum load for a car roof (check your owner's manual) can be as low as 100 lbs., so it doesn't take many sheets to max out your car. Maxing out your arms is another matter entirely.

Use a "third hand" for assembly

If you're making a large plywood or MDF case, it can be very awkward to hold the pieces in place when joining them. Two of the most useful tools are a couple of one-hand clamps (Quick-Grip is one brand) and a couple of right-angle brackets. Make the brackets from two thicknesses of 3/4-in. plywood glued together, and knock off the inside corner so it doesn't interfere with the fit of the joint. If you need help holding up one piece of plywood so you can attach the brackets, simply clamp a handscrew to the bottom edge.



Working **Alone** with Plywood

Rough out your crosscuts first

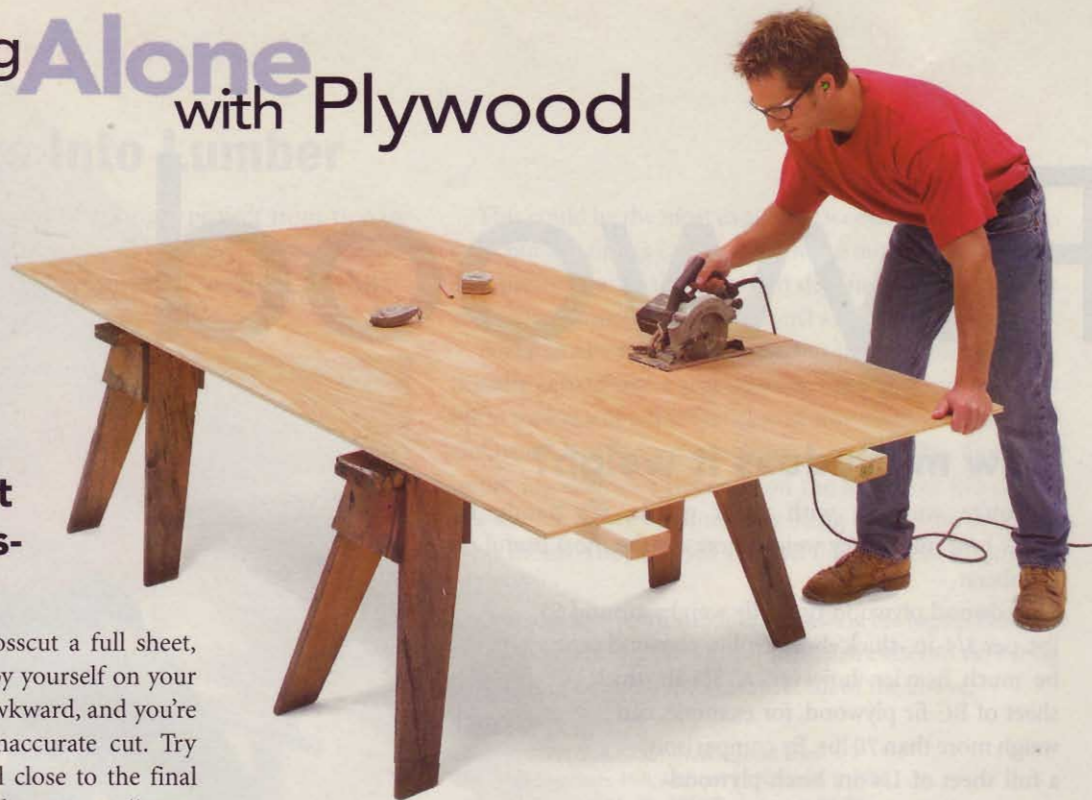
If you need to crosscut a full sheet, don't try to do it by yourself on your tablesaw. It's too awkward, and you're likely to get an inaccurate cut. Try cutting your panel close to the final size using a circular saw or jigsaw, always keeping one factory edge on each piece. That factory edge will give you a reference edge to precisely cut the pieces to their final size on the tablesaw. A carpenter's chalk line is fast and accurate enough for marking

the rough crosscuts.

I keep a few old 2x4s in my lumber rack, put them under the plywood (on the floor or on sawhorses) and set my saw depth so it cuts into them by 1/4 in. or so. A more elaborate system

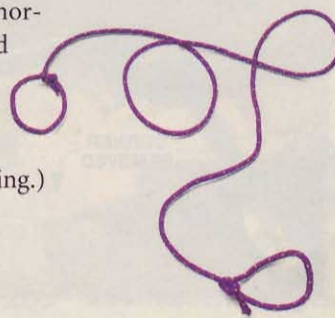
(and better, I admit) is to make a support grid out of pieces connected by half-lap joints.

This tip is one of the good old good ones, and it can make a huge difference in how well a project turns out.



The 12-foot rope trick

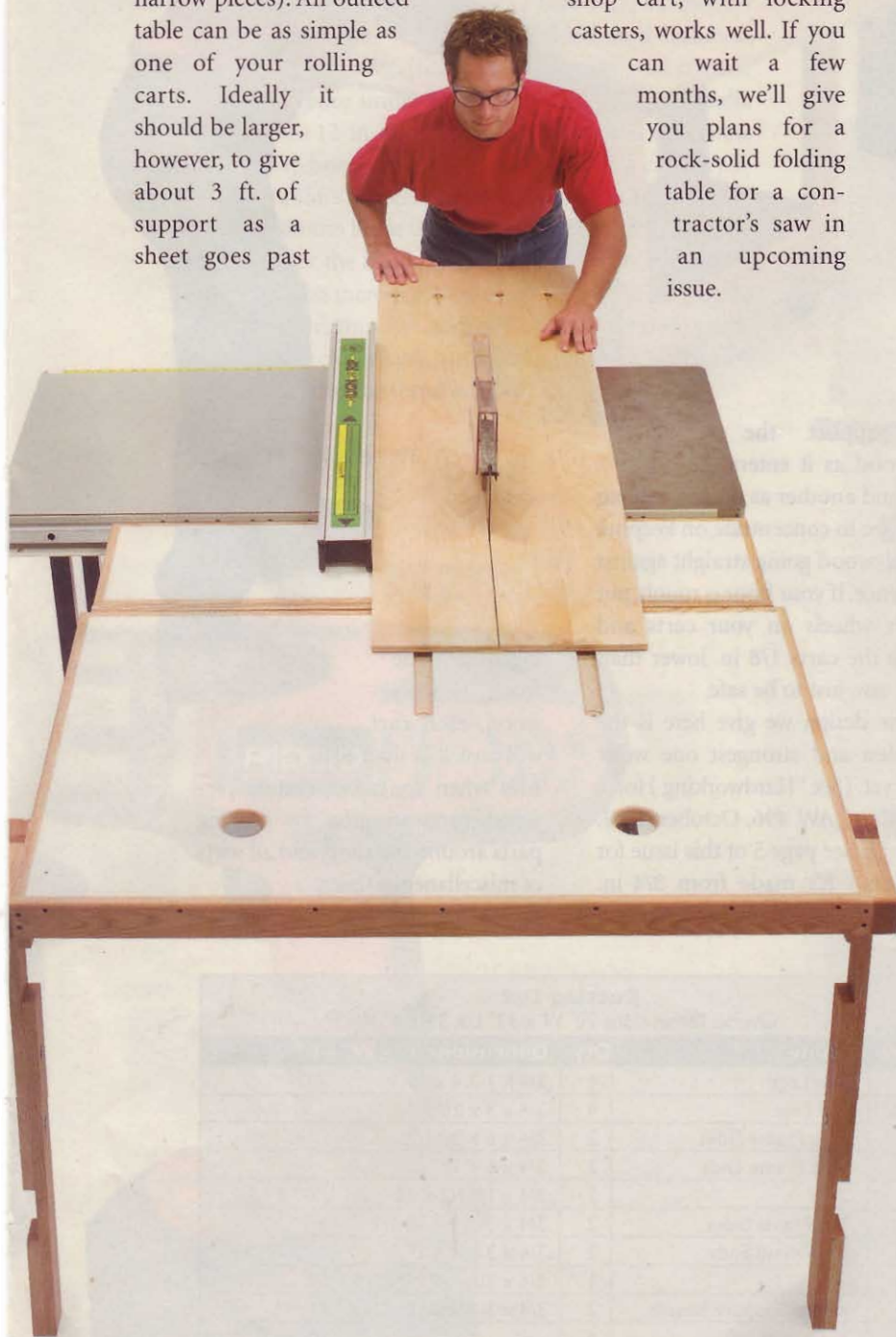
If you have to lug full sheets of plywood (or even worse, MDF) around your shop, a 12-ft. length of rope is one of the handiest tools you can have. Simply tie a loop in each end and you have a simple handle for your sheet stock. I use a bowline knot, but anything that doesn't slip would do the trick. With the sheet leaning up against a wall, simply slip a loop under the bottom corners, lift the rope, and off you go. This works for drywall, too. (P.S. We took the photo with our happy woodworker on the other side so you can see better, but normally you'd be on the same side as the rope, for easier lifting.)



Ya gotta have an outfeed table

One of the very best tools for working with plywood alone is an outfeed table on your saw. It will give support for long pieces exiting the saw much more securely than roller stands (although they work fine for narrow pieces). An outfeed table can be as simple as one of your rolling carts. Ideally it should be larger, however, to give about 3 ft. of support as a sheet goes past

the blade, so it doesn't fall off the table. On a cabinet saw that stays in one place, an outfeed table is easy—it's just a table. On a saw on a mobile base, especially a contractor's saw, it's not as easy. A larger version of a rolling shop cart, with locking casters, works well. If you can wait a few months, we'll give you plans for a rock-solid folding table for a contractor's saw in an upcoming issue.



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Working Alone with Plywood



Shop carts are your best friends

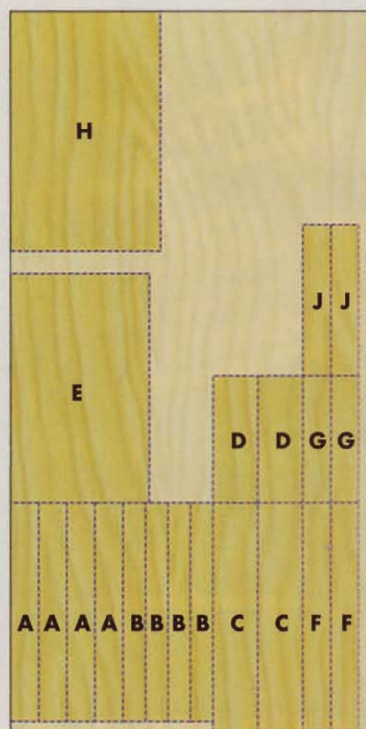
If there is one single thing that will make working alone with plywood bearable, it's a good shop cart, made so it is the same height as your tablesaw. Don't make just one, though, because I guarantee that once you use it you'll instantly want a couple more. You can use one cart

to support the plywood as it enters the saw and another as it exits, leaving you free to concentrate on keeping the plywood going straight against the fence. If your floor is rough, put larger wheels on your carts and make the carts 1/8 in. lower than your saw, just to be safe.

The design we give here is the simplest and strongest one we've seen yet. (See "Hardworking Horse and Cart," AW #96, October 2002, page 52. See page 5 of this issue for reprints.) It's made from 3/4-in. plywood, glued, nailed and screwed

together. Made from fir plywood, each cart will cost less than \$80.

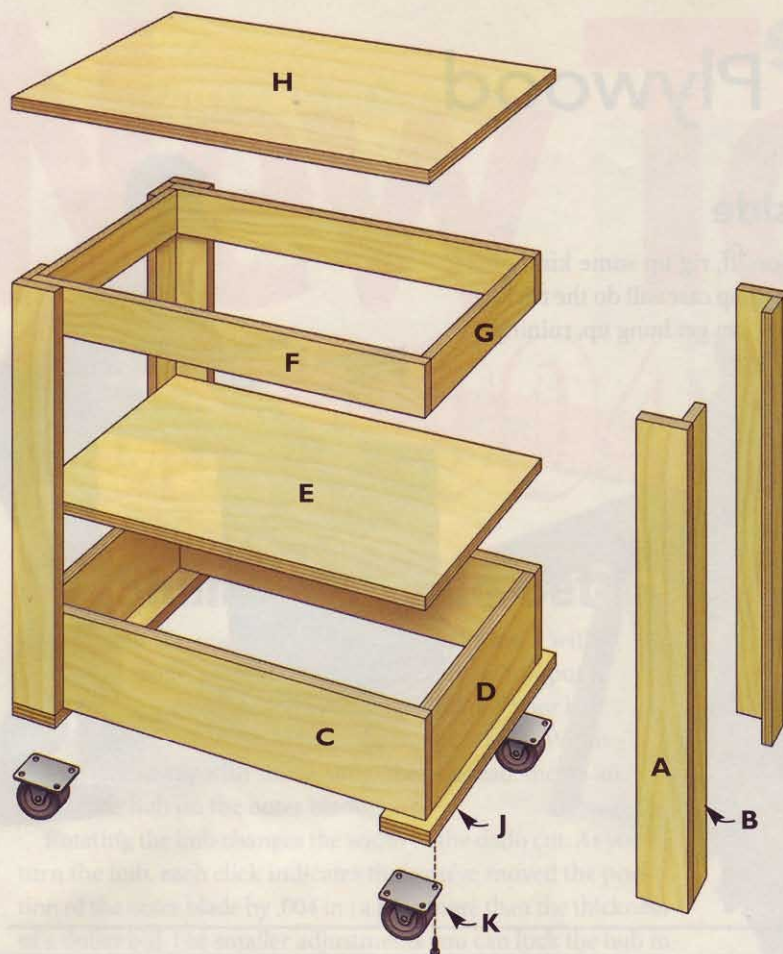
And when you're not cutting plywood, carts are great for moving parts around the shop, and all sorts of miscellaneous tasks.



Cutting List

Overall Dimensions 20" W x 32" L x 34-1/4" H

Part	Name	Qty	Dimensions T" x W" x L"
A	Side Legs	4	3/4 x 3-3/4 x 29
B	End Legs	4	3/4 x 3 x 29
C	Base Frame Sides	2	3/4 x 6 x 30-1/2
D	Base Frame Ends	2	3/4 x 6 x 17
E	Shelf	1	3/4 x 18-1/2 x 30-1/2
F	Top Frame Sides	2	3/4 x 3-3/4 x 30-1/2
G	Top Frame Ends	2	3/4 x 3-3/4 x 17
H	Top	1	3/4 x 20 x 32
J	Wheel Support Boards	2	3/4 x 3-3/4 x 20
K	3" Casters	4	



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Working **Alone** with Plywood

Get support on the left side

For crosscutting long pieces of plywood by yourself, rig up some kind of support on the left side of your saw. Sometimes a shop cart will do the trick, especially if your floor is smooth. However, a cart can get hung up, ruining your cut. A more sure-fire approach is a piece of plywood clamped to a saw-horse at just the right height. Make it long enough to support your work both before and after the cut. If you have a fence with a square metal tube at the front of the saw, check out the idea on page 31 (Self-Storing Tablesaw Support) for another approach.

AW



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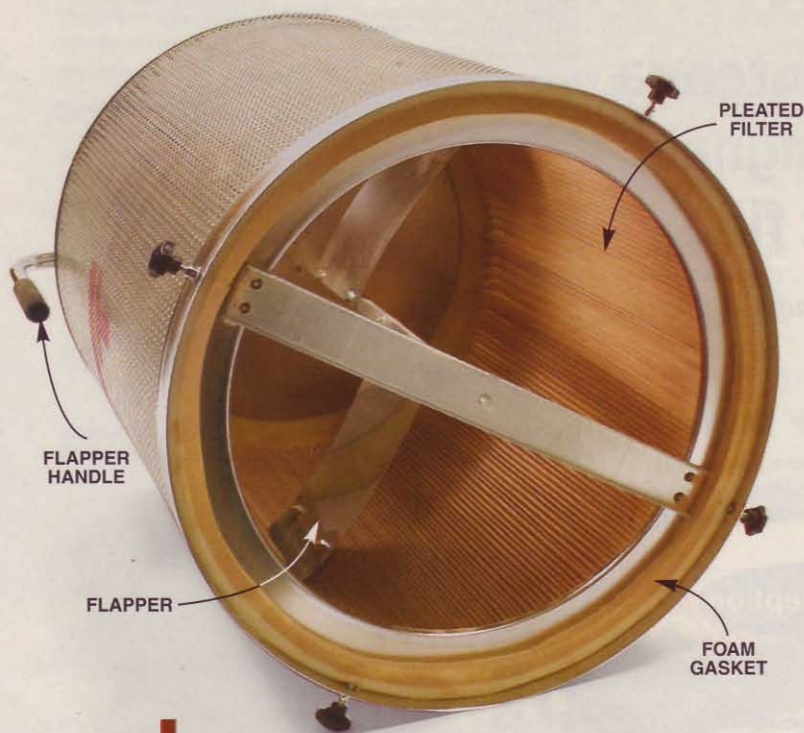


Cartridge Dust Filters

Better filtration for single-stage collectors

The cartridge filter is the first significant improvement in single-stage dust collection in more than 30 years. Cartridge filters offer better filtration, better airflow and easier cleaning than bag filters (Photo 1). They are available on new dust collectors or as a replacement for the old filter bag on your existing single-stage machine. The upgrade doesn't come cheap (approx \$200 for the 20-in. cartridge). What's really amazing about these filters, however, is they pack five to six times the filter area into a cartridge that's smaller than the bag it replaces!

By Dave Munkittrick



1 Pleated filter material offers increased airflow and better filtration than typical bag filters. A foam gasket creates an airtight seal on the collector-bag flange. No more hassles with leaky band-clamp seals. Flappers allow you to clean the pleats of dust build up without having to remove the cartridge.

Better Filtration

The filter material in cartridge filters is made of spun-bond polyester, capable of filtering dust particles down to 2 microns. Compare that to a typical woven fabric bag filter that struggles to capture dust at 30 microns.

A disposable plastic collection bag replaces the lower bag, because the lower bag no longer needs to do double duty as a collection sack and a filter.

Enhanced CFM

A single-cartridge filter offers much more filter area than a single-bag filter (Photo 2). That's because the filter material is folded or pleated like an accordion (Photo 1). The pleated filter design fits a ton of filter material into a small package. The increased filter area makes it easier for air to flow through the filter. We did some testing on the 1-1/2-hp single-stage collector in our shop and found that switching to a cartridge filter resulted in a 20-percent bump in cfm performance.

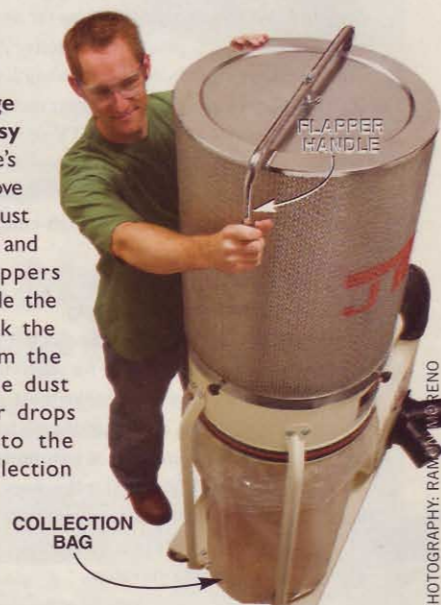
Dust-Free Filter Cleaning

Cleaning a bag filter often means transferring fine dust from the bag to your clothes, shop and lungs. Cartridge



2 Cartridge filters contain 5 to 6 times the filter area of a standard bag filter but they take up less space. The large filter area allows more air to pass through, which in turn increases the air-moving performance of your dust collector by about 20 percent.

3 Cartridge filters are easy to clean. There's no need to remove the cartridge. Just turn the handle and a pair of flappers (Photo 1) inside the cartridge knock the dust cake from the pleats. The fine dust drops from the filter drops harmlessly into the disposable collection bag below.



filters put an end to that nonsense. There's no need to remove a cartridge filter from your collector to clean it. Jet and Penn State cartridge filters feature a set of offset paddles built into the filter (Photo 1) that allow you to knock the dust cake off the pleats with a few turns of a crank (Photo 3). All that nasty wood dust drops harmlessly into the plastic collection bag for easy disposal. This system keeps you, your shop and lungs cleaner.

Easy Installation and Bag Changes

The cartridge filters we tried were easy to install on older model single-stage collectors. Just drop them onto the bag flange where your upper filter bag normally goes. The foam gasket on the cartridge filter makes an airtight seal on the rim (Photo 1).

Better Than Aftermarket Bags

High-performance aftermarket bags cost less than a cartridge, and some claim to filter to 1 micron. The trouble is these bags are undersized and that means reduced cfm performance for your collector. Also, because the bags are too small for the amount of air being forced through them, a lot of dust gets pushed right through the bag and back into your shop.

You can get custom bags made to the correct size that cost about \$120. That's almost the cost of a cartridge filter and you'd still be faced with the cleaning hassles inherent in any bag system.

Coming Soon

There are some brand-new cartridge filter systems in the pipeline for the coming year:

- Delta is developing a new filtration system to replace their bags. Still in the research phase, this system may be completely different than the cartridge filters featured in this article.
- Laguna is completely redesigning their line of cartridge-based dust collectors. Expect their release sometime soon.
- SECO offers a complete line of dust collectors with cartridge filters. Plus, they have a new line of self-contained hybrid dust collectors that use cartridge filters and offer some of the benefits of a cyclone system without the space requirements.

AW

Sources

amazon.com, www.amazon.com

Jet DC-1100CK, 1-1/2 hp,

#708626CK; \$450

Jet DC-1200CK 2 hp,

#708634CK; \$500

Jet DC-1900CK 3 hp,

#708637CK; \$870

Retrofit canister and filter for 20"

collectors, #708739K; \$190

Replacement plastic collection bags,

#709563; \$14 for a pack of 5.

Kufo Industries Corp.

(888) 558-4628, www.kufogroup.com

DC102 2 hp; \$899

DC103 3 hp; \$1,095

DC105 5 hp; \$1,795.

Laguna Tools

(800) 234-1976, www.lagunatools.com

Laguna Filter 25; \$895

Laguna Filter 50; \$1,500.

Penn State Industries

(800) 377-7297

www.pennstateind.com

DC2-CF 1 1/2 hp; \$450

DC250-CF 2 hp; \$470

Retrofit canister for 20" collectors,

#DCANISTER; \$200

Replacement plastic collection bags,

#DCPB7; \$16 for a pack of 10.

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What's New in Bandsaws

Innovations abound on four new machines

The 14-in. bandsaw has been around for decades, and during that time big changes have been few and far between. Some innovative aftermarket accessories have been available from independent suppliers, but now some of these improvements are showing up as standard equipment. We took a close look at four 14-in. bandsaws that now come standard with at least a couple of these new features.

By Randy Johnson



Grizzly

Low Price, Fully Loaded

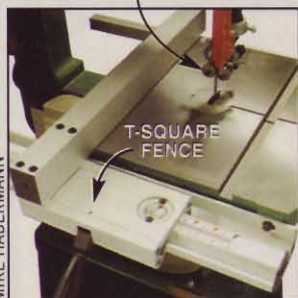
"The Ultimate 14-in. bandsaw." That's what Grizzly calls its new model G0555. Given the features and the price, this saw is hard to beat for value in a home shop machine.

The first thing we noticed was the T-square fence. It's sturdy, easy to use and can be adjusted at an angle to accommodate blade drift. The fence can even be removed from the saw without removing the saw blade. This is not true of many other bandsaw fences. The fence can be ordered as a separate item if you want to add it to your existing saw (see Sources, page 80).

The saw comes with a 1-hp, 110/220 dual-volt motor and can be operated at two speeds (1,500 and 3,200 ft. per minute). The slower speed is for cutting non-ferrous metals and the faster speed is for cutting wood. Grizzly equips this saw with ball-bearing guides that are easy to adjust, and do a very good job of supporting the blade. Hinged doors and a quick-release tension lever make blade changing simple. The 4-in. dust port is a welcome feature and the semi-enclosed base provides a sturdy platform for the saw. You can buy an optional riser block kit (\$50) that gives the saw 12-in. resaw capacity (see Sources, page 80).



BALL-BEARING
BLADE GUIDES



MIKE HABERMANN

The Grizzly G0555 (\$375) comes equipped with a 1-hp, 110/220 dual-volt motor, a T-square fence, ball-bearing guides, a quick-release blade tensioner and a 4-in. dust port.

Delta 28-475X

Loaded with New Features

This new Delta bandsaw incorporates a truckload of great new features. The most original new feature is the blade-indexing hub that's part of the blade tensioning and release system. The hub is marked for blade widths from 1/8 in. to 3/4 in. A twist of this hub selects the blade width and a pull on the lever quickly sets the tension in one simple action.

Delta has also incorporated a stronger tensioning spring as part of this system. The increased tension is useful when resawing because it reduces blade wander. You can retrofit this new spring to an older Delta 14-in. bandsaw with an upgrade kit from Delta. The kit also includes an improved tension rod and nut (see Sources, page 80).

The 110/220 dual-volt motor delivers 1-1/2 and 2 hp respectively. The added power is a big asset when resawing or cutting thick lumber.

Delta has finally done away with the small useless dust port under the table. Now dust travels out the back of the cabinet base through a 4-in. port. This also keeps the dust hose out of the operator's way. The saw comes with a 6-in. depth of cut. You can increase that to 12 in. by adding a riser block kit for an additional 100 bucks (see Sources, page 80).

HIGH-
TENSION
SPRING

QUICK-
TENSION
LEVER



MIKE HABERMANN

BLADE
INDEX ON
HUB

The new Delta 28-475X (\$900) includes a quick-tension system that includes a hub indexed for different size blades. The saw also has a new high-tension spring, a larger table, bigger motor and better dust collection.

LARGER
TABLE

LARGER
TRUNNION
LEVERS



Powermatic 14CS

Improved Visibility for Accurate Cuts

The new Powermatic 14CS bandsaw sets itself apart by including features not found on the other three saws we looked at. For starters it has a large two-part cast-iron table. This provides a large work area, yet the main table can be tilted a full 45 degrees to the right for angled work. Also included is a chip blower that is powered by an air pump, which runs directly off the main motor. Another standard feature is a halogen lamp. Between the blower and the lamp you will have a clean and illuminated workpiece and no more excuses for wandering off the cutting line.

The Carter brand blade tensioning system requires only a flip of a lever to release and reset the blade tension. It's very convenient. The Carter system is also available for other brands of bandsaws (see Sources, page 80).

The Powermatic 14CS is powered by a 1-1/2 hp, 115/230 dual-volt motor. The ball-bearing blade guides are micro-adjustable for precise control of blades from 1/8 to 3/4 in.

Standard cutting height capacity is 6 in. but this can be increased to 12 in. with the addition of an optional riser block kit (\$90, see Sources, page 80). The 14CS comes equipped with a 4-in. diameter dust port for better collection. Standard equipment also includes a T-square-style rip fence and a miter gauge.



Powermatic's new 14CS (\$850) comes equipped with a Carter quick-release blade tension system, a large two-part table, a halogen lamp, chip blower, ball-bearing guides and a T-fence.

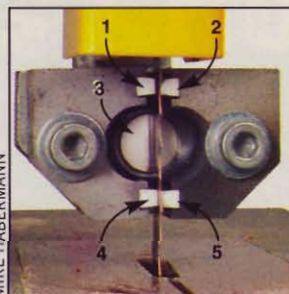
Laguna LT14SE

A Small Shop Saw with Big Saw Capacity

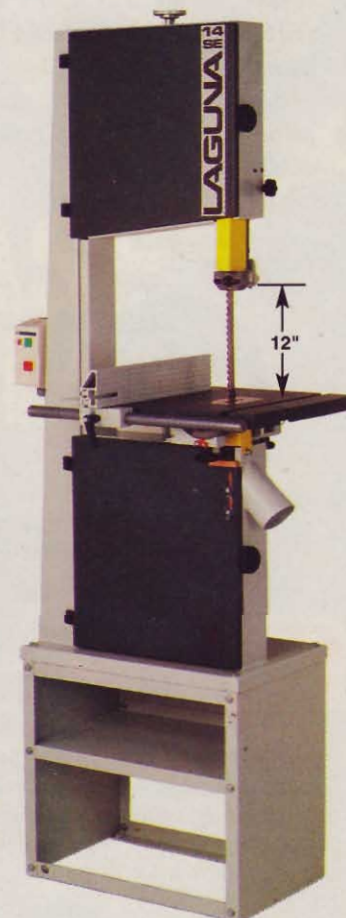
Laguna packs a lot of capacity into its new LT14SE bandsaw. It has a Euro-style steel-box frame for strength and vibration reduction and it comes equipped with a 2-hp motor (available as 220 volt only). This muscle machine comes standard with a full 12 in. of resaw capacity.

The LT14SE features Laguna's unique and sturdy five-point blade guide system. Other saws support the blade at only three points. The five-point guide system supports the blade above and below the thrust bearing and is designed to reduce blade vibration. This makes the blade run truer while sawing to produce a smoother, more accurate cut. The ceramic guide blocks used in this system will last for years (see Ceramic Guides Last Longer, page 80). Laguna also makes a five-point guide system that can be added to Delta, Jet and several other brands of bandsaws (see Sources, page 80). The five-point guide supports blades from 1/8- to 1-in. wide.

The table height on the Laguna LT14SE is 44 in. which is about 10 in. higher than most Euro-style bandsaws. This height is similar to most 14-in. cast-iron saws and is a very comfortable height for most small shop work. The LT14SE comes standard with a hefty rip fence, but the semi-enclosed base is an additional \$80.



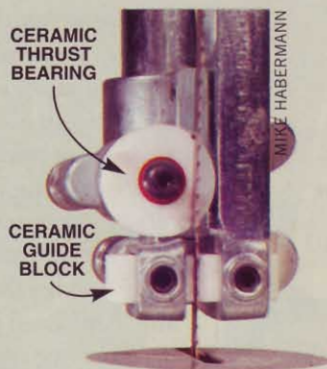
A five-point ceramic blade guide system is now standard on all Laguna bandsaws. The new LT14SE (\$1,095) comes standard with a 12-in. resaw capacity and a 2-hp, 220-volt motor.



Ceramic Guides Last Longer

Ceramic guides have been around for several years on commercial bandsaws. Now they're available for small shop bandsaws (see Sources, below, right).

Ceramic guides are purported to run quieter, cooler, smoother and last longer than standard metal blocks. We ran them on a couple of saws and found the biggest benefit of ceramic blocks is that they have very flat, smooth faces and are highly resistant to wearing. This means they stay flat and provide excellent support for a long, long time. They also have a polishing effect on the blade, which helps keep it clean of pitch buildup. They're great for blades that are 1/4 in. or wider. For narrower blades we still prefer Cool Blocks (see Sources, at right).



Space-Age ceramic guides have ultra-flat, smooth surfaces that stay truer and last longer than metal guides many times over. Ceramic guides create very little friction or heat and the non-rotating thrust bearing is quieter than the conventional ball-bearing guides they replace.

A Bandsaw for any Budget or Shop

Bandsaws are like cars; they come in a wide range of sizes and prices, and you won't have to go far to find one that fits your needs or budget.

Ryobi has upgraded their 9-in. band-saw (photo below). The BS901 (\$100) is a great small saw for small-shop scroll work. It will cut only 3-1/4 in. under the guides, has only a 1/3-hp motor and it won't keep pace with a 14-in. machine, but it's not meant to.



Ryobi BS901 (\$100) is a benchtop bandsaw that has 9-in. throat capacity and 3-1/4-in. height cutting capacity. It uses an induction motor for quiet operation and plenty of power for its size.

If you're looking for a big bandsaw, check out any of the manufactures mentioned earlier in this article as well as companies like General International and Wilke Machine Company (see Sources, at right).

These larger bandsaws have even larger motors and bigger resaw capacity. Most require at least 220-volt service. They are heavy and not very mobile, but if you want muscle, they deliver.



The Bridgewood Professional bandsaw series includes an 18 in. and 22 in. (\$1,900 and \$2,300) for the woodworker looking for a heavy-duty machine. They have a double-wall frame for extra rigidity. An American-made motor is standard on these bandsaws. **AW**

Good Cuts Require a Good Blade

Laguna is now selling a blade of their own design called the Resaw King. It's a premium-quality resaw blade with carbide-tipped teeth. A special tooth design leaves a very smooth surface. It comes in 3/4 in. and 1 in. widths and sells for \$1.50 per in. for either width. Laguna makes them in any length to fit any brand of saw (see Sources, below).



Sources

Carter Products, (888) 622-7837
www.carterproducts.com
Quick release system; \$150.

Amazon, www.amazon.com
Delta 28-475X bandsaw; \$900
Delta 28-984 height attachment (riser block kit); \$90.

Delta Parts Dept., (800) 223-7278
www.deltawoodworking.com
Delta spring kit #28-002; \$54.

General International, (514) 326-1161
www.general.ca (Canada)

Grizzly Industrial
(800) 523-4777, www.grizzly.com
G0555 bandsaw; \$375
Rip fence with rails, #PO555114-8; \$75
Riser block kit for G0555, #H3051; \$50.

Iturra Industries, (888) 722-7078
4636 Fulton Rd.
Jacksonville, FL 32225
Space-Age Ceramic Guides (available for most major-brand 14-in. bandsaws), \$16 per set of 4 blocks; \$16.50 per set of 2 thrust bearings.
Cool blocks; \$12 per set.

Laguna, (800) 234-1976
www.lagunatools.com
Laguna LT14SE bandsaw; \$1,095
Laguna 5-point ceramic guide system; \$275
Laguna Resaw King blades; \$1.50 per in.

Powermatic, parts dept. (800) 274-6848
or www.amazon.com
14CS bandsaw; \$850
Riser block kit, #1791217; \$90.

The Home Depot
Ryobi BS901 bandsaw; \$100.

Wilke Machine Co., (800) 235-2100
www.wilkemachinery.com

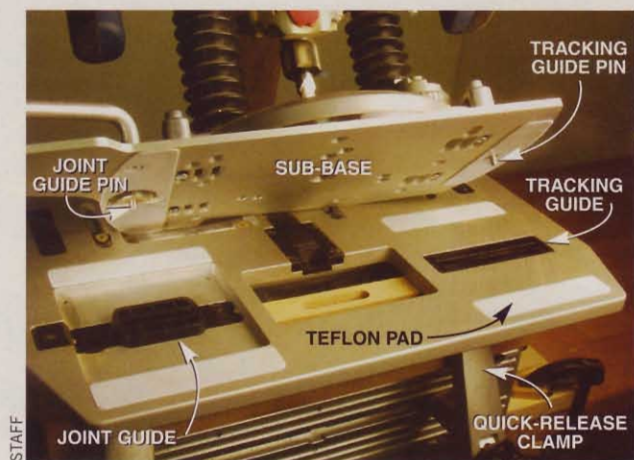
Leigh Mortise and Tenon Jig

Spot-on accuracy and utmost flexibility—for a price

The Leigh Frame Mortise and Tenon Jig (FMT) makes perfect straight and angled mortise and tenon joints in a huge variety of sizes.

I was excited to give this tool a try. I've been dreaming for years about building a set of dining room chairs, but the thought of making all those mortises and tenons always dampened my enthusiasm.

By Randy Johnson



With two micro-adjust guide pins and interchangeable joint guides this jig offers great accuracy and ease of use. Several other adjustments and features, such as Teflon pads and quick-release clamps, give this tool a very focused goal—quick and accurate mortises and tenons. It's a goal at which it succeeds with flying colors.

After giving the FMT a thorough workout on a couple of practice chairs my enthusiasm has returned. It takes a few hours and some patience to master the numerous adjustments, but once you do, the jig becomes a real pleasure to use.

The FMT base unit retails for around \$700 (see Sources, page 83). That's a lot of cash, but we found the quality and performance of the jig are truly exceptional. It's a tool that small professional shops or those who want a dedicated mortise and tenon machine will find well worth the investment.

The FMT base package includes the main jig, a router sub-base, five joint guides, a 5/16-in. spiral router bit and a thick, well-written owner's manual (Photo 1). The sub-base comes with mounting hardware and can be attached to any currently available plunge router.

This basic setup enables you to cut 5/16-in.-thick tenons that are 1/2-in. to 1-1/2-in. wide, plus the corresponding mortises. Additional joint guides and router bits are available as options. With them you can make 17 additional standard-size joints as large as 1/2-in. thick by 2-1/2-in. wide and as small as 1/4-in. thick by 5/16-in. wide. By combining different router bits and guide templates you can make joints as small as 1/16 in. by 1/8 in. Now that's a tiny joint! With all the options, the price of the FMT is over \$900.

How it Works

The basic principle behind the jig is that the router sub-base has two guide pins that follow corresponding guides in the top of the main jig (Photo 1 and Fig. A).

The joint guide is interchangeable and width and

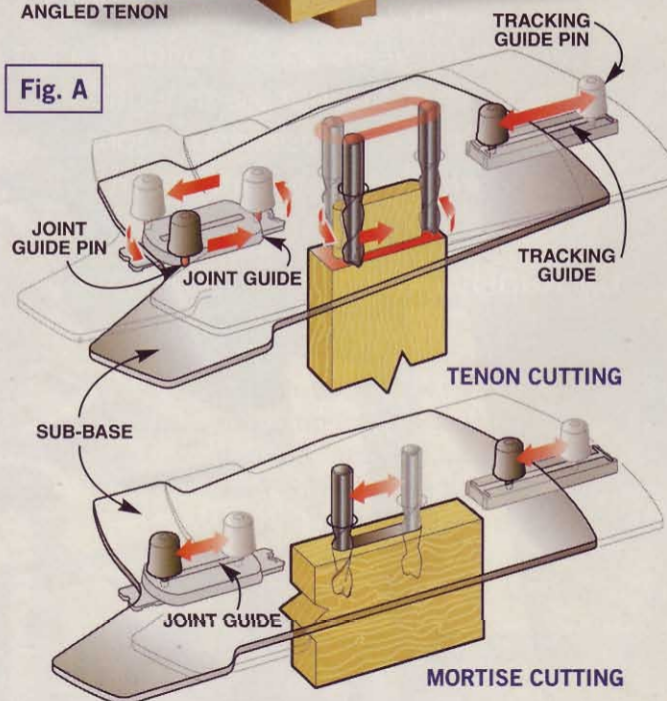
2 The FMT produces round-ended mortises and tenons. It can machine to the middle of a 5-in.-thick board with no limit on the width.



3 Making angled tenons is a breeze with the FMT. The front plate pivots up to 30 degrees which makes holding the workpiece at an angle very simple. An easy-to-read angle gauge is conveniently located on both ends of the jig.



Fig. A



Following the outside of the joint guide with the joint-guide pin produces a tenon. Following the inside slot of the joint guide with the joint-guide pin produces a mortise. The joint guides are interchangeable for different size joints. During operation, the tracking-guide pin follows the straight slot in the tracking-guide track and directs the right side of the router side to side.

length of the joint. The tracking guide is fixed. Its function is simply to direct the right side of the router side to side. The guide pins are tapered and can be adjusted up and down, which makes them ride tighter or looser against the joint and tracking guides. You control the fit of the joint by adjusting the pins. Turning the pins one-eighth turn will change the joint fit by .001 in. Getting good-fitting joints is a cinch considering that a mortise and tenon joint should have about .005 in. of clearance for glue.

The FMT produces only round-

ended mortises and tenons (Photo 2). If you want a square joint you'll have to trim the parts by hand or with another power tool. This machine also makes angle tenons, thanks to a pivoting front plate (Photo 3). This feature came in really handy when I cut the angled joinery on my dining room chairs.

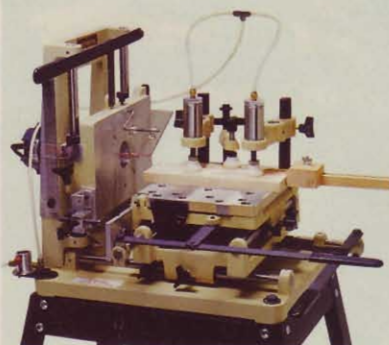
The FMT has a dust port that attaches to a vacuum hose. It's not perfect, but it does catch the lion's share of the chips. Most importantly it draws the chips away from the cutting area and prevents them from getting packed in around the joint during routing.

Improvement Wish List

Having run the FMT through its paces and having successfully made several dozen perfect joints, I came up with only two gripes. The first one is that the hole in the sub-base for the router bit is only 1 in. in diameter. This makes it tough to see where you're routing when cutting a joint. Second, I wish there were a few more template sizes for 3/8-in. and 1/2-in. router bits. The owner's manual shows how to make custom stops for the existing templates to get in-between sizes, but I found those stops a hassle to make and use. **AW**

Other Joint Machines

For the cost of the Leigh FMT you can buy a very good chisel-mortising machine and use your tablesaw to cut the tenons. You can also cut mortises and tenons with one of these other joinery machines:



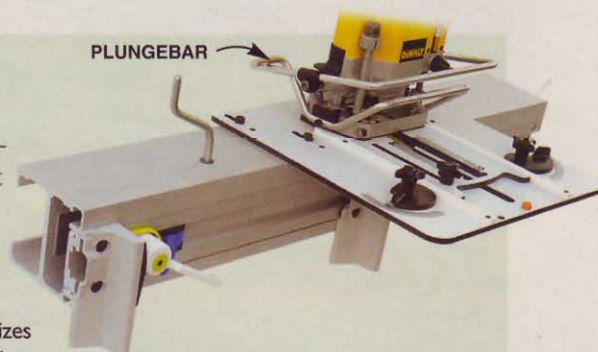
Multi-Router

The Multi-Router can cut 15 different sizes of round-ended mortise and tenon joints plus several styles of dovetail and box joints. The \$2,600 Multi-Router is a robustly built machine that can be outfitted with optional pneumatic hold-downs. The router is mounted perpendicular to a plate that moves up and down. The workpiece mounts to the feed table that moves left and right and in and out. (See Sources, below.)



The Matchmaker

The Matchmaker is capable of cutting several different kinds of joints. The basic model costs \$700. Mortises and tenons can be cut by using the manual stops on the machine, or with one of the 12 optional templates. The mortise and tenon templates cost \$15 each and make joints ranging in size from 1/4 in. by 1 in. to 3/4 in. by 3 in. (See Sources, below.)



WoodRat WR5

The WoodRat WR5 (\$545) is a wall-mounted jig that can rout a joint up to 30-in. wide. It cuts several different styles of joints. The router's sub-base rides freely on a table while the workpiece is secured to a moveable rail below. Cranking a handle moves the rail. A unique PlungeBar device simplifies plunging and requires only one hand to operate. It can be purchased separately (see Sources, below). Optional guide rails with adjustable stops (\$40) are also available. The guide rails allow you to set up the WR5 for repeat production work. The WoodRat produces a square tenon and a round-end mortise so you need to modify one of them for the joint to fit. The WoodRat also comes in a smaller version (18-in.-wide capacity) called the LittleRat LR1 (\$340). (See Sources, below.)

Sources

Lee Valley Tools
(800) 871-8158 (USA)
(800) 267-8767 (Canada)
www.leevalley.com
Leigh FMT, #17N11.01; \$750.

Highland Hardware
(800) 241-6748
www.tools-for-woodworking.com
Multi-Router, model 101L,
#085201; \$2,600.

WoodRat
(877) 966-3728
www.woodrat.com
30-in. WoodRat VVR5; \$545
18-in. WoodRat LR1; \$340
PlungeBar, \$40.

Woodworker's Supply
(800) 645-9292
www.woodworker.com
Matchmaker; \$700.



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Eclipse Scrollsaw

*A revolutionary drive system
gives you super-fast, super-
smooth cutting*

ART DIRECTION: PATRICK HUNTER, VERN JOHNSON AND EVANGELINE EKBERG • PHOTOGRAPHY: LEAD PHOTO, RAMON MORENO, ALL OTHERS, STAFF

By Dave Munkittrick and Patrick Spielman



I The lack of moving arms greatly reduces vibration. The total weight of all the moving parts in the Eclipse is only one pound two ounces.

The story of the Eclipse scroll saw is a classic American tale. Like the Wright brothers who invented man's first flying machine in their bike shop, Ernie Mellon designed and built the revolutionary Eclipse scroll saw in his garage. What makes the Eclipse unique is the lack of pivoting arms or parallel links that give motion to the blade. Instead, it uses a revolutionary "oscillating-loop" drive mechanism (Fig. B).

The Eclipse is a professional-quality saw that retails for about \$1,500. That puts it in a class with other high-end saws from Excalibur, Hegner and RBI.

Oscillating-Loop Drive Advantages

The oscillating-loop drive mechanism in the Eclipse makes it unnecessary to have pivoting arms or parallel links to give motion to the blade. This unique drive gives the Eclipse many advantages:

- **Low Vibration**

With no moving arms and fewer moving parts, the oscillating-loop drive greatly reduces vibration (Photo 1).

- **On-the-Spot Vertical Blade Travel**

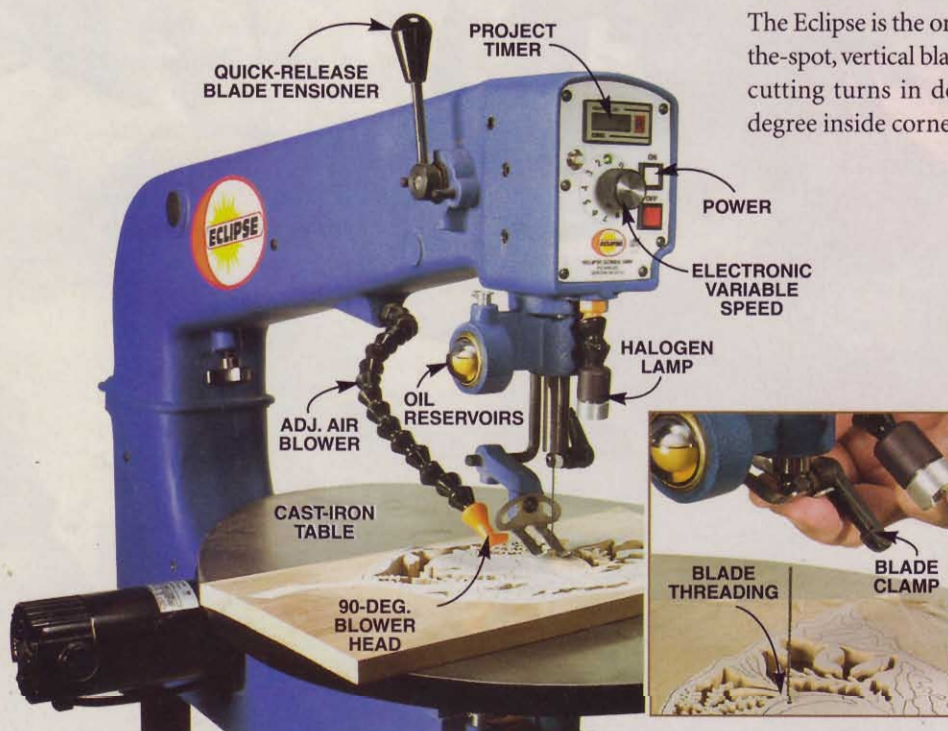
The oscillating-loop drive eliminates the back-and-forth blade motion found on parallel-arm and parallel-link saws. The Eclipse is the only scroll saw on the market with true, on-the-spot, vertical blade travel. This is a plus when making tight cutting turns in delicate stock and for those perfect 90-degree inside corners needed in intarsia.

- **Longer Blade Stroke**

Most scroll saws are forced to keep their blade stroke around 7/8 in. to control vibration and minimize the back-and-forth motion of the blade. The oscillating-loop drive frees the Eclipse from these constraints and allows a full 1-1/2 in. of blade travel. A longer stroke extends blade life because it distributes blade wear over a larger portion of the blade and also does a better job of eliminating sawdust from the kerf for a cooler cut.

- **Faster Cutting at a Slower Speed**

The top speed of the Eclipse is 1,350 strokes per minute (spm) yet it cuts faster than scroll saws running at 1,750 spm. That's because the long blade stroke uses more of the blade in each stroke. The slower speed has a couple of other benefits: It reduces vibration and keeps your blades running cool for longer life.



2 All the essential operating controls are up front and on top of the Eclipse, including power and electronic variable speed. A quick-release blade-tensioning lever plus a large, finger-friendly upper-blade clamp make blade threading for cutouts a cakewalk (see inset). The oversized cast-iron table tilts 45-degrees to the left and right. A built-in halogen light really lights up the cutting area and a fully adjustable air blower with a 90-degree head blows dust off your project and away from you. There's even a timer that records time spent on your project. Oil reservoirs lubricate the high-tech ceramic bearings for the blade holder shafts.

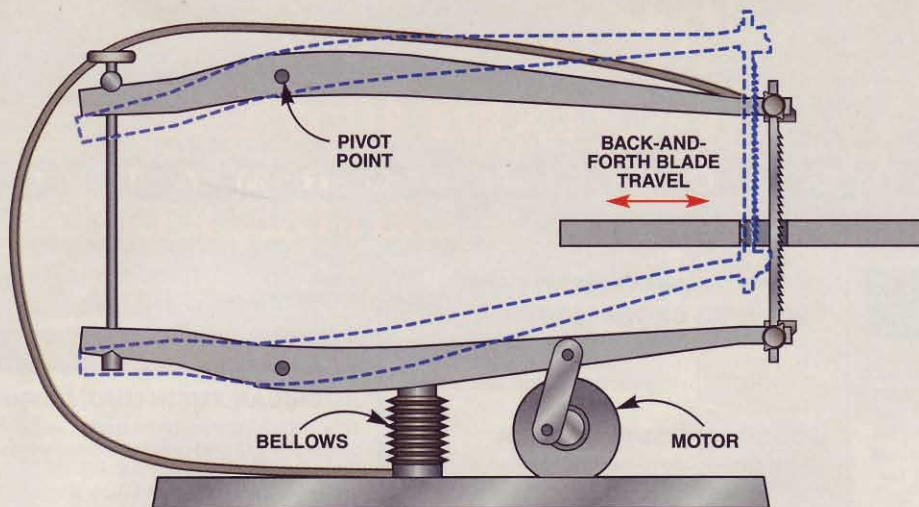


Fig. A

Parallel-Arm Drive

Most scrollsaws use a pair of parallel arms to give motion to the blade. The arms rock on single pivot points causing the blade to move back and forth as well as up and down. This blade motion can make fine detail cuts a challenge. The moving arms also produce vibration—the bane of scroll saw operators everywhere. Parallel-link drives also have back-and-forth blade travel.

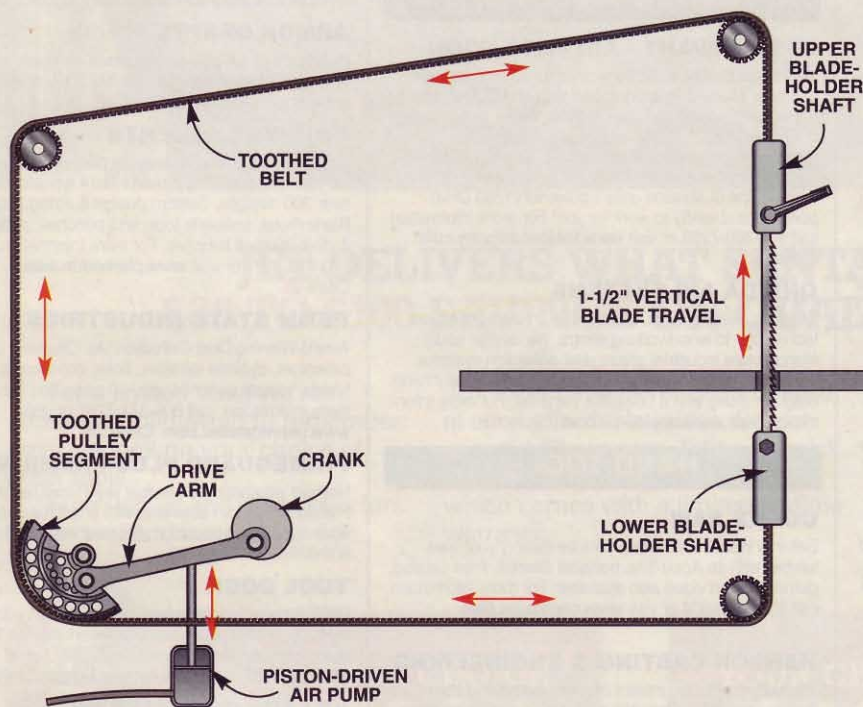


Fig. B

Oscillating-Loop Drive

The Eclipse is the only scrollsaw with an oscillating-loop drive system. This unique drive consists of a flat, toothed belt, each end of which is attached to a blade holder shaft. The blade is the final link that forms the loop. A crank and drive arm converts the rotary motion of the motor into the oscillating motion of the toothed-pulley segment. The resulting blade motion is like your bandsaw when you rock the wheel back and forth. The advantages of this system are: on-the-spot, vertical blade travel eliminates the difficulties caused by the front-to-back cutting stroke found on other saws; reduced vibration, because there are fewer moving parts; and the oscillating loop system allows a full 1-1/2-in. of blade travel, twice that of most scrollsaws.

Other Great Features

The Eclipse comes with a host of great features (Photo 2) including an adjustable but sturdy three-point stand. The blower is powered by a piston air pump designed to outlast a bellows blower (Fig. B). The 20-in.-deep throat allows large projects to be swung around the blade. A true, double trunnion and cradle table tilt mechanism, like on a bandsaw, locks solid and has a scale that's readable from above the table.

Safety Features

The Eclipse is a very safe scrollsaw because there are no exposed moving parts, other than the blade and the blade holders, to pinch fingers or catch clothing. The biggest safety innovation on the Eclipse is the auto shut-off for blade breaks.

A Few Things We Didn't Like

We wish the Eclipse had dust collection and a tool-free lower blade holder. Also, the oil reservoirs for the ceramic bearings that surround the metal blade-holder shafts seem a bit archaic. But we're told they take little oil; a few ounces last a lifetime. The halogen lamp gets hot and could cause a burn if contacted. Finally, the 1-1/2-in. thickness limit may be a problem for scrollers who are used to the more typical 2-in. thickness limit.

AW

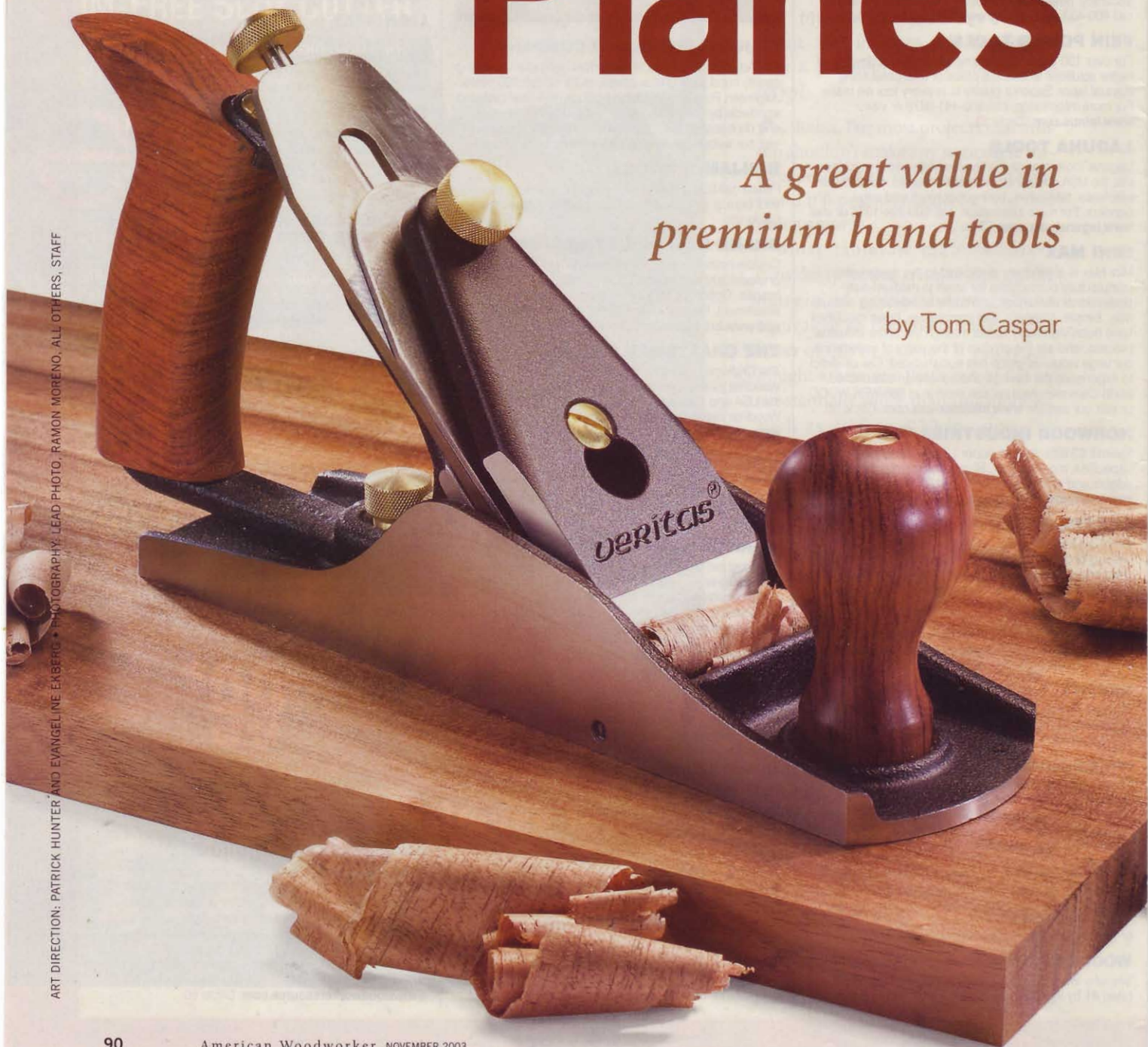
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Veritas Planes

*A great value in
premium hand tools*

by Tom Caspar



ART DIRECTION: PATRICK HUNTER AND EVANGELINE EKBERG • PHOTOGRAPHY: LEAD PHOTO, RAMON MORENO, ALL OTHERS, STAFF

"I'm really getting the itch to use good hand tools, so what kind of plane should I buy?" I've answered that question for years by urging students in my Unplugged Woodshop class to find a vintage Stanley, tune it up and buy a new high-quality blade. Now I've got a better answer: simply pick up the phone or go online and order a new Veritas hand plane from Lee Valley Tools (see Sources, page 92).

Feature for feature, Veritas planes are the equal of other premium planes, but they're significantly less expensive. Considering what you get, and the hours of tune-up labor you'll save, they're very reasonably priced.

The latest entry in the Veritas series is a #6 fore plane (\$220) for jointing edges and flattening large surfaces. Veritas also makes #4 (\$175) and #4-1/2 (\$180) smooth planes, and a #5-1/4 jack plane, (\$190). All of these planes share the same innovative features, unique to Veritas. A low-angle smooth plane (\$160) and a low-angle block plane (\$100) are also available.

Features

Premium Blade

A great blade can make all the difference in the world, and Veritas blades are among the best. Standard plane blades generally perform well only when freshly sharpened. Premium blades hold a keen edge far longer.

Premium blades are stiffer than standard blades. Veritas blades are made from 1/8-in.-thick A2 steel, a very durable alloy new to plane making. These blades are about 50-percent thicker than standard blades, and that makes them less prone to skip and jump, or "chatter."

Veritas planes use a screw rather than the standard cam lever to lock down the blade. A

screw is a little less convenient than a lever, but it's not a big deal.

Rock-Solid Frog

Take a Veritas plane apart and it's full of surprises. The frog (the part that supports the blade) has extra-large machined surfaces. It actually extends through the sole of the plane in order to support the blade as close to the cutting edge as possible. The frog's large face and solid bedding further reduce blade chatter.

The blade adjustment mechanism is quite unusual. You swing a knob side to side to level the blade, and turn the same knob to adjust the blade's depth of cut. One quarter turn of the knob moves the blade up or down by 0.003 in. (the thickness of a piece of paper), about the same as other planes. It's too bad that the knob is so small in diameter, though. Larger knobs are easier to fine-tune.

Veritas planes have a generous amount of room in front of the rear handle. This is particularly welcome on smooth planes, where space is often cramped. The handle is supported on top to prevent it from breaking, a common problem with old Stanley planes.

Stable and Tough Body

Flattening the bottom of a plane is hard work. It's a thankless task that's got to be done for a plane to work well. Veritas planes require little or no flattening because their bodies are made from stress-relieved iron.

Other features of the Veritas body include: a screw for adjusting the frog without removing the blade, adjustable set screws on either side of the blade (they further reduce chatter by locking in the blade), and sides that are ground square to the bottom (so you can turn the plane on its side to joint the edges of thin stock in a shooting board).



You Should Also Know About

Clifton Planes

You may have heard of the classic Stanley Bedrock, the granddaddy of all American premium planes. Today, they're rare and expensive. A Clifton plane brings you the same outstanding design with an extra-thick blade. One advantage of a Bedrock-style plane is that you can adjust the mouth opening without removing the blade, but it's the Rock of Gibraltar frog that really makes it such a desirable tool. Cliftons are available in #3 through #7 sizes. The #4 smooth plane costs about \$200 (see Sources, below).

Lie-Nielsen Planes

These premium planes are the standard by which all of today's premium planes are measured. They're simply superb and a joy to use.

Lie-Nielsen specializes in reviving and improving classic hand tools. Their line of bench planes are made in the Bedrock style, have extra-thick blades and virtually indestructible bronze or ductile iron bodies. An iron body #4 goes for \$250; a bronze body costs \$300.

AW



Sources

Veritas planes
Lee Valley Tools
(800) 871-8158,
www.leevalley.com
#4 Smooth Plane,

#05P26.01; \$175
#4-1/2 Smooth Plane,
#05P23.01; \$180
#5-1/4V Bench Plane,
#05P24.01; \$190
#6 Fore Plane,

#05P28.01; \$220
Low-angle Smooth Plane,
#05P25.01; \$160
Low-angle Block Plane,
#05P22.01; \$100.

Clifton planes
Highland Hardware
(800) 241-674
www.highlandhardware.com

Lie-Nielsen planes
Lie-Nielsen Toolworks
(800) 327-2520
www.lie-nielsen.com



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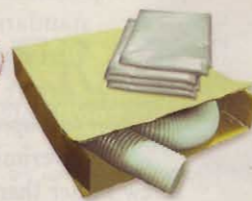
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Recipe for Resawing

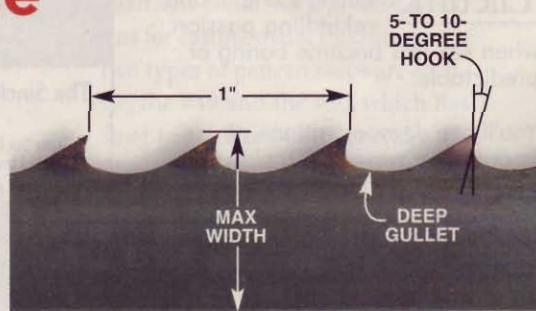
For a woodworker, few things are more satisfying than resawing thin sheets of veneer off of a large block of wood or slicing a beautiful board in half to create two bookmatched pieces. I remember the enthusiasm I felt when I tried resawing for the first time. My excitement soon turned to disappointment however, as I watched my bandsaw chew up piece after piece of expensive walnut. Grrrrrr. It took me a long time to get over that initial experience. There's no reason for you to share my pain, though. Here's a recipe that will give you great results every time you resaw.

by Dave Munkittrick

Choose the Right Blade

The single most important key to success is to use a sharp, high-quality blade. A dull blade is nothing but trouble. Here's what to look for: First, use as wide a blade as your saw can handle. That said, we don't recommend using a 3/4-in. blade on a 14-in. bandsaw unless the blade thickness is no more than .025 in. (For more information, see "Premium Resaw Bandsaw Blades," AVW #91, December 2001, page 103. See page 5 for reprints. Also, see our resaw blade recommendations for 14-in. bandsaws in Sources, page 96.)

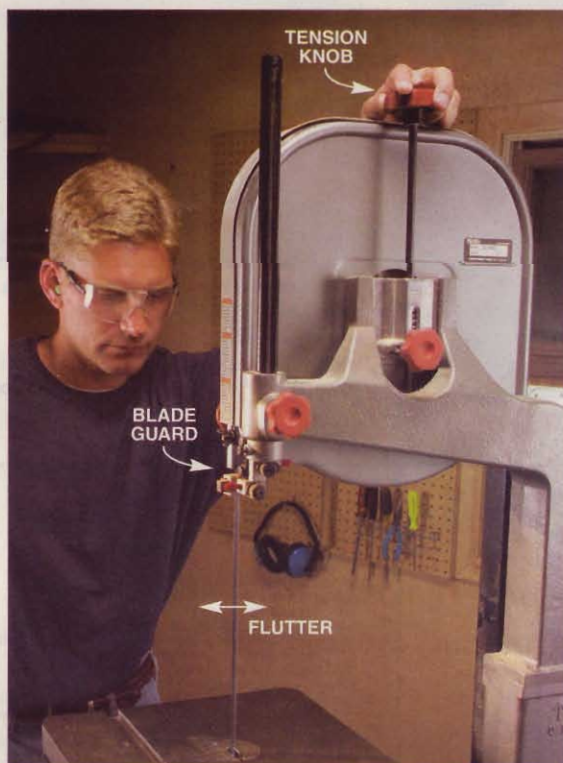
Second, choose a blade with three to four teeth per inch (tpi) and a 5- to 10-degree hook. Coarse blades have deeper gullets for better sawdust clearance. The hook tooth is an aggressive cutting design that lessens the feed pressure required. Reduced feed pressure keeps the blade from deflecting, which results in a straighter cut.



STAFF

Adjust Tracking

- 2 With the saw unplugged, back off the thrust bearings and guides as far as possible. Mount the blade and temporarily set the tension according to the gauge on the saw. Manually spin the upper wheel and adjust the tracking knob until the blade is more or less centered on the wheel.



Caution: Blade guard retracted for this step. *Be careful.*

Adjust the Guides

- 4 I use the thickness of a dollar bill or a piece of paper as a spacer for setting the guide blocks and thrust bearings. First, set the blade guide arm so it's about 1/4 in. above the height of the stock you're resawing. Then bring the guide block assembly forward until the fronts of the blocks are even with the bottoms of the blade gullets. Wrap a dollar bill around the blade and set the blocks up tight against the sides of the blade. Use the bill again to set the thrust bearing behind the blade. Repeat the process for the lower guide blocks and thrust bearing. Non-metallic blocks, such as Cool Blocks, can be set in direct contact with the blade and don't need the dollar bill spacer.



BILL ZUEHLKE

Set Blade Tension

- 3 The flutter test is the best way I've found to set the tension on a bandsaw blade. Keep the guides and bearings backed off and raise the blade guard to the maximum height. Stand clear of the blade and turn the machine on. Decrease the blade tension until the blade begins to flutter back and forth. Now, increase the tension until the blade flutter is eliminated. Add a one-half turn or so to the tension knob and the blade tension should be just right.



Find the Drift Angle

5 Try cutting a straight line on your bandsaw. You'll notice that your stock has to be fed at an angle in order to make a straight cut. This is called the "drift angle."

Setting the fence at the right drift angle is critical to successful resawing. Start by cutting a straight line on a piece of scrap. Stop the cut about half way and trace the angle of the board onto the bandsaw table. This represents the angle your fence needs to be set at in order to make a straight cut. Set your fence parallel to the line on the table and you're ready to resaw. Try a test cut first. Most of the time, everything

works great right off the bat.

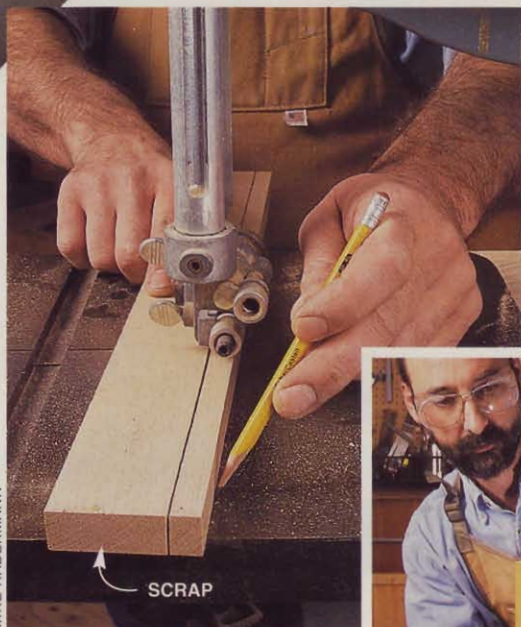
Occasionally, I find a few minor adjustments to the fence angle or a little more tension is required for best performance.

Finally, be sure your stock is jointed square and that your blade is square to your table and don't forget to use push sticks at the end of the cut. **AW**

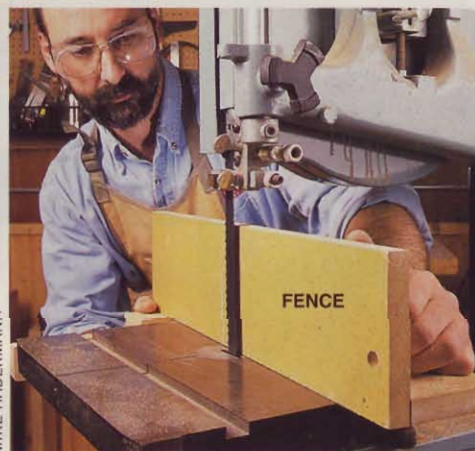
Sources

Our Editors' Choices for resaw blades on a 14-in. bandsaw were Highland Hardware's Wood Slicer, \$30, (800) 241-6748, www.highlandhardware.com, and the Timber Wolf AS-S, 3/4 in., \$25, (800) 234-7297, www.suffolkmachinery.com.

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2. Certify that all information furnished on this form is true and complete. (signed) Jim Schiekofer, Publisher

What's Coming Up

in AW #105, January 2004



Tool Test: Miter Saws

Have you ever seen a miter saw with a laser? It's mighty cool, if it really works! We've been poking and prying into 27 10- and 12-in. miter saws. (Yep, 27!) Only a few have lasers, and we wanted to know if that makes them a notch better than the rest. Next month we'll bring you the surprising results.

Keepsake Box

Just how do you make corners like these look so good? All you need to make this jewel of a box is a tablesaw, router table and our step-by-step photos. Why stop at one, though? We'll show you how to make a dozen at a time.



Garden Chair

Store-bought garden chairs are either horrendously expensive or doomed to wobble apart after only a few years. So make your own! We've designed an extremely comfortable chair that will weather storms for many years. The secret? Robust joints made with nothing fancier than a plunge router.

PLUS

Workbench

Workbenches are rarely big enough, stiff enough or have enough storage space. We've tackled all these problems, and figured out how you can make a huge, level top using common, small-shop tools.

Drill Caddy

Here's how to store your cordless drill and all the bits, drivers, countersinks and boxes of screws in one small, carry-it-anywhere toolbox.

Brad Nailer Tips

Handy hints on buying brads, avoiding blowout, upgrading your compressor hose, setting air pressure and more.



Radial-Arm Rocket Launcher

When I first started woodworking, I decided that I needed a radial-arm saw, even though I had never worked with one. I set it up in my new garage workshop, where my first task was to rip some rough

boards down to the same width. I set up the saw to make a rip cut. I rotated the head 90 degrees, just like it said in the instructions, and locked it 6 in. away from the fence. So far, so good.

I turned on the saw and started cutting my first board. It ripped, all right.

Right out of my hands,
across the
street

and into my neighbor's garage door! I was stunned—and scared. It happened so fast, and I didn't understand what I'd done wrong. Only after re-reading the owner's manual did I realize that I'd fed the board into the saw blade from the wrong direction.

Vernon Brown



Mr. Cast Iron, Meet Mr. Carbide

My shop is small, so I often have to use my tablesaw as a work surface. I just cover it with a sheet of plywood, for protection. Yesterday I needed to rout a large-diameter hole in the inside of a kitchen cabinet I was building. I covered the saw table, clamped the cabinet side in place, installed a 1/4-in. straight bit in my router and started routing.

I was nearly finished when all of a sudden the router started to vibrate, big time. I turned it off ASAP and waited anxiously for the motor to stop. When I lifted the router, the mangled bit fell out. Routing the 3/4-in.-thick plywood in a single pass was a big mistake! It overtaxed the bit and collet, causing them to fail. I should have made several shallow passes instead.

Removing the workpiece revealed an ominous-looking slot in the protective plywood. Gritting my teeth, I peeked underneath. There, front and center, was a ragged 5-in.-long gash in my cast-iron tablesaw top.

Phil Acker

Phil, you can restore your damaged saw table by filling the gash with J-B Weld, a steel-powder-reinforced epoxy that's formulated for repairing metal. You'll find it at most hardware stores and home centers for about \$7 for two 1-oz. tubes.-TJ

If you have a woodworking blunder you're willing to share, send it to us. You'll receive \$100 for each one we print. Send to: **AW Oops!, American Woodworker, 2915 Commers 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.