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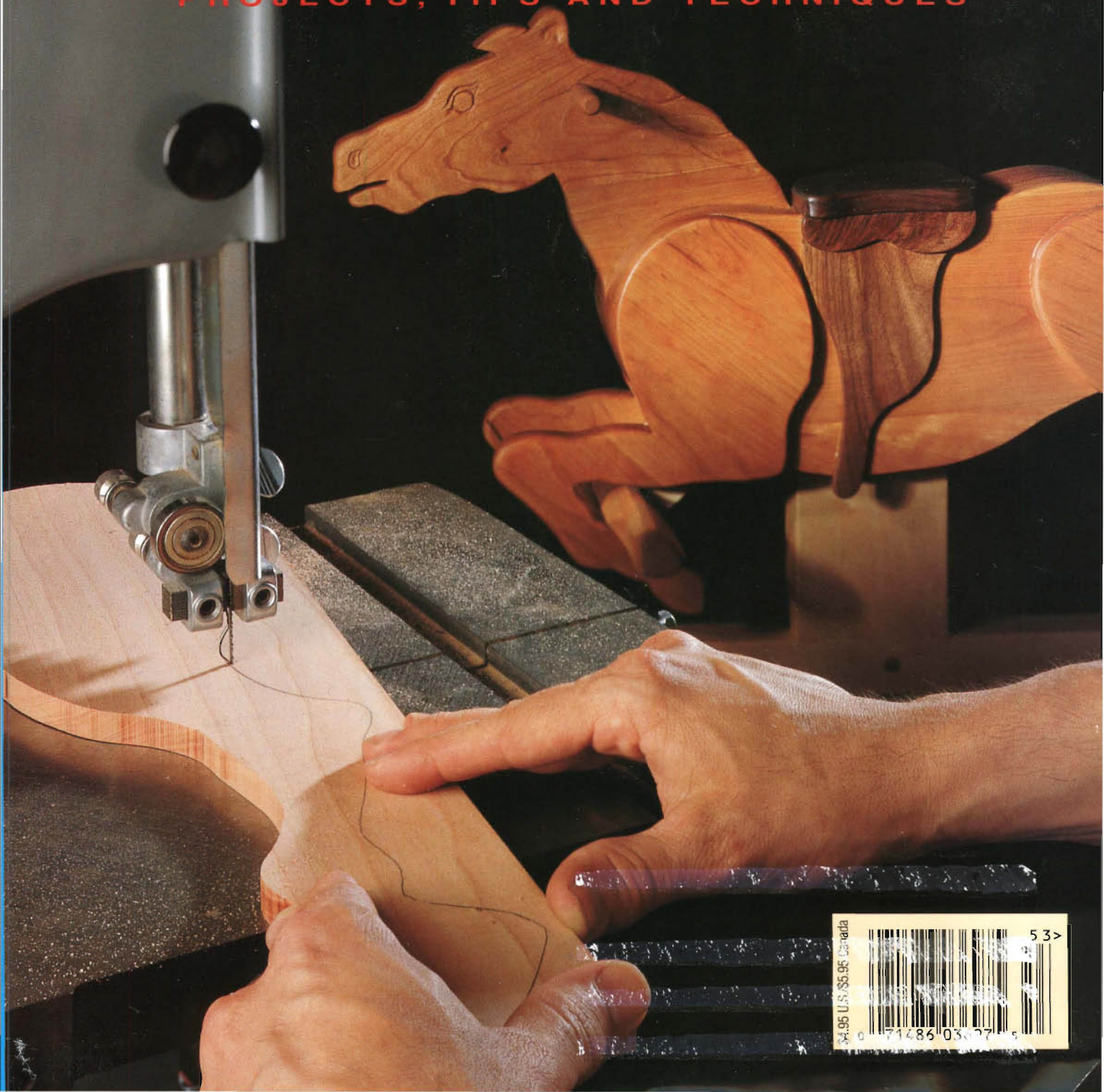
Space Saving Computer Center ■ Create a Mahogany Memory Box

TODAY'S

Issue 53

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30 Memory Box

By Troy Johnson

With a little setup you can build as many of these wonderful gifts as you'd like, each one a home for someone's treasured photo memories.

21 Rockin' Bronco

By Rob Johnstone

A Today's Woodworker original, Dan Jacobson's brand new rocking horse design has been getting rave reviews from young cowpokes everywhere!



14 Compact Computer Cabinet

By Rick White

Open the wraparound doors, swing the hidden worktable into place and pull out your keyboard slide – it's an instant office!

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Shaping with the router.
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- 38 **Classified Marketplace**
And how to get free product info.

Safety First

Learning how to properly operate power and hand tools is essential for developing safe woodworking practices. For purposes of clarity, necessary safety guards have been removed from the equipment shown in some of the photos and illustrations in Today's Woodworker. We in no way recommend using this equipment without safety guards and urge readers to strictly follow manufacturers' instructions and safety precautions.



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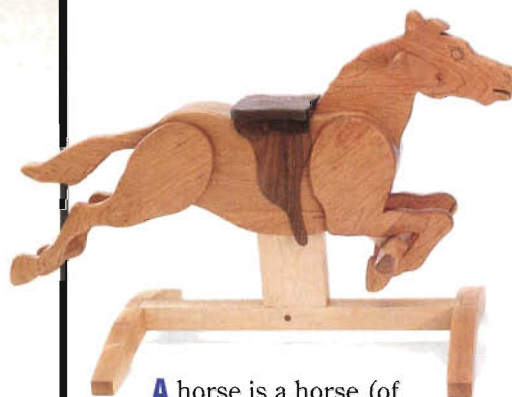
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Working the Bugs Out



A horse is a horse (of course, of course), unless it's the latest creation from project designer Dan Jacobson's studio. Dan's new Rockin' Bronco (beginning on page 21) is a true Today's Woodworker original, featuring an innovative rocking mechanism that was the result of countless hours of experimentation. If you're going to invent a new mousetrap, Dan says, you don't necessarily start in the shop. First, you deal with issues like materials and dimensions, then you move on to safety and quality concerns. As Dan is fond of saying, "My job is to work out all the bugs so our subscribers don't have to." That often means building a complete prototype, creating computer models and, in the case of the Rockin' Bronco, bringing children into the studio to see how they fit, act and enjoy his work.

Now that summer's over and most of us are finding our way back to the shop, I thought this would be a good time to take a look at one of our most used tools, the table saw. Rick Christopherson does just that (See Techniques, page 28), covering two of the most common table saw problems, kickback and binding.

You'll be able to put his advice on handling large sheet stock to use right away if you decide to build Rick White's computer desk starting on page 14. This desk isn't just a great table saw project, it's also the perfect way to straighten out your home office - or hide the bills behind closed doors until you're ready to deal with them!



Project designer Dan Jacobson designed the Rockin' Bronco on his computer, then built a full-scale prototype to work all the bugs out.

Leave it to Rick White to come up with a unique hardware application: this time he employed a TV swivel to conceal an unexpected desktop that swings into place when you need it.

Troy Johnson also wants to help us get organized: his mahogany Memory Box on page 30 is the perfect repository for a family's photographs. I particularly like the top because it accommodates quick switches - depending on which set of relatives are visiting!

Please join me in welcoming our new associate editor, Rob Johnstone, to Today's Woodworker. Rob grew up with sawdust in his hair - his Dad and uncle operated a cabinet shop for more than twenty years and Rob himself has worked as both a luthier and furniture maker. I thought Dan's new rocking horse would be the perfect project to break Rob in on, and I think you'll agree that he did a terrific job!

Larry N. Stolen

Correction

On the entertainment center in issue 50, pieces 39, the deep drawer fronts and backs, are incorrectly listed at 16 $\frac{1}{2}$ " long instead of 16". Please make this change in your own issue as soon as possible, to avoid problems later.

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(Circle FREE INFORMATION NO. 21 on pg 38)



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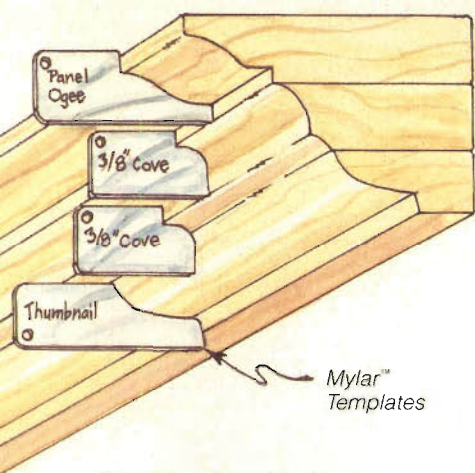


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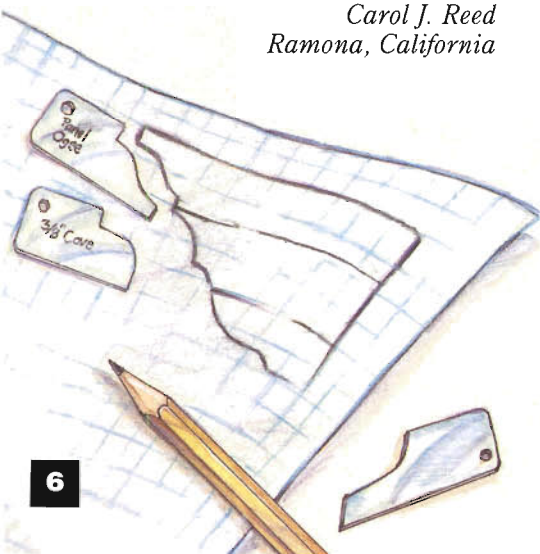
Shaping with a Router

I don't have a shaper so I came up with this alternative. I simply traced the profile of each of my router bits on Mylar (a stiff, opaque, thin sheet of plastic film that's available in blueprint and artist supply stores), noting the profile of the bearing as well, then carefully cut out each profile. Next I punched holes in each for storing on a key chain.

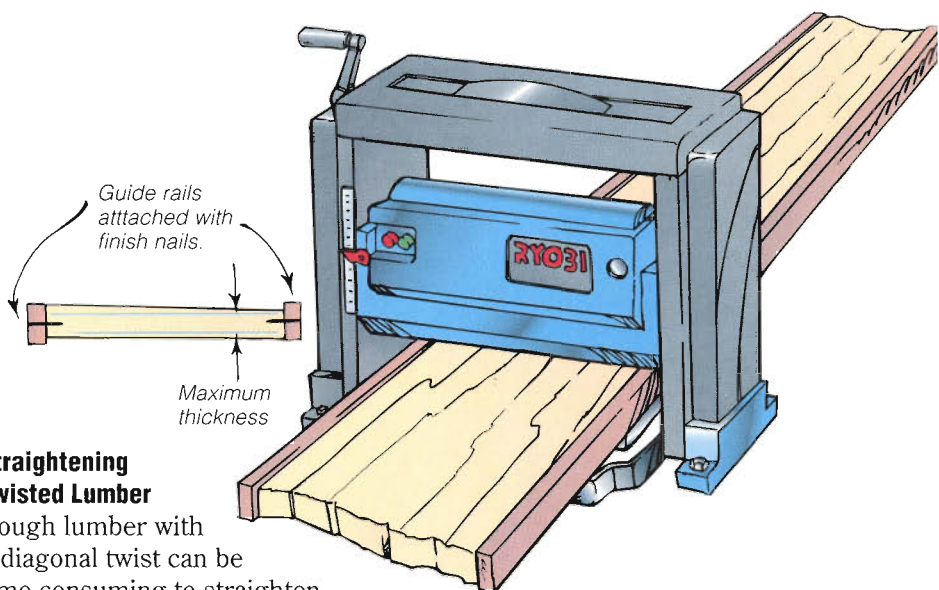
When designing a stacked shape, I create a paper storyboard by using the various profiles to design the final shape. The slightly opaque Mylar allows me to see profiles already traced.

While designing in this manner, you can easily determine if the bit will have a bearing surface to ride on. You don't need to abandon the shape if it doesn't: just use the fence on your router table as your guide.

*Carol J. Reed
Ramona, California*



Stretch & Straighten



Straightening Twisted Lumber

Rough lumber with a diagonal twist can be time consuming to straighten, especially if it exceeds the capacity of your jointer. Here's a setup that will quickly straighten it using a planer or thickness sander, yielding the maximum thickness.

Joint the edges of the board and set it on a flat surface, then shim below the two high corners and measure from the flat surface to the highest part of the lumber.

Using this measurement for their width, rip two guide boards from 3/4" thick stock, then cut these guides to the length of the lumber to be planed. Clamp the guides to the outside edges of the twisted (and shimmed) lumber, then nail them in place with #6 finish nails every 10 inches. Remove the clamps and run the entire setup through the planer or sander, taking material off alternating sides until the lumber is flat. The guide boards will run straight and true through the planer, carrying the twisted board with them. Since the nails are centered in the edges of the board, they never come in contact with the cutterhead.

*William Woodward
Hunlock Creek, Pennsylvania*

Protecting Pocket Hole Bits

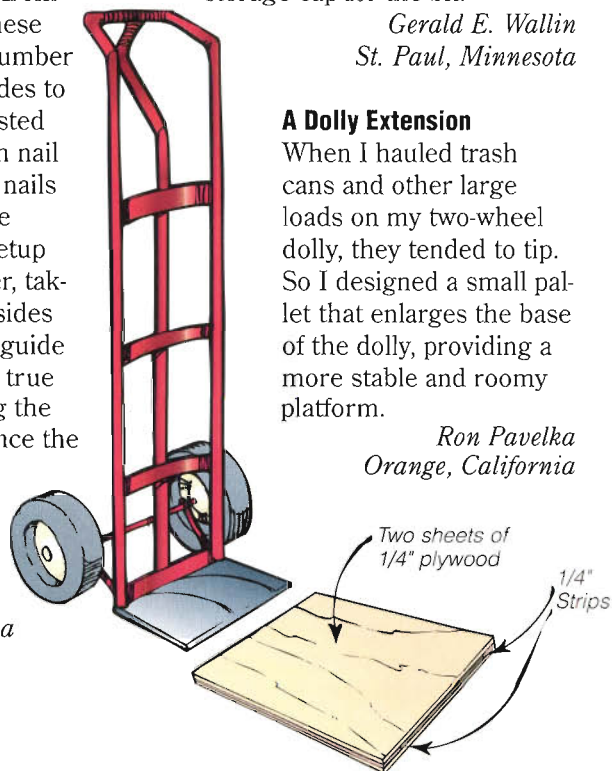
The specialty bit used to create two-stage holes for pocket screws is basically a 3/8" bit with a 1/8" pilot bit on its business end. You can protect the pilot and cutting edges of this bit by boring about two inches into a small scrap wood block and storing the bit in the scrap. The friction fit turns the block into a nice protective storage cap for the bit.

*Gerald E. Wallin
St. Paul, Minnesota*

A Dolly Extension

When I hauled trash cans and other large loads on my two-wheel dolly, they tended to tip. So I designed a small pallet that enlarges the base of the dolly, providing a more stable and roomy platform.

*Ron Pavelka
Orange, California*

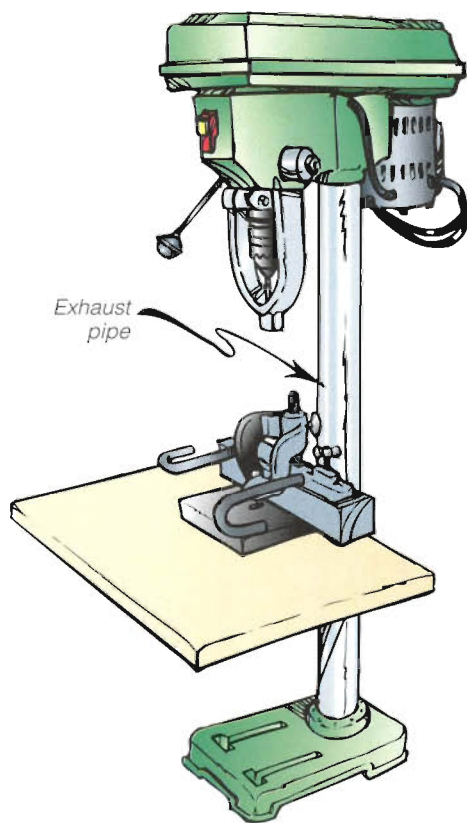


Weeping Cedar

Modifying a Small Drill Press

A few years ago I decided that I wanted a small bench-mounted drill press. Then my woodworking got better and I began to see the need for a mortising jig, but none was available for my drill press. So I went to a local supply house and bought a jig for standard presses. I then went to an auto store and, for \$6, bought a length of straight exhaust pipe with the same outside diameter as the post on the drill press. Using this exhaust pipe, I was able to raise the head to the point where I had plenty of room to mount the mortising kit.

*Robert Opekun
Orange, Connecticut*



Today's Woodworker pays from \$40.00 (for a short tip) to \$150.00 (for Pick of the Tricks) for all Tricks of the Trade published. Send yours to **Today's Woodworker**, Dept. T/T, P.O. Box 261, Medina, MN 55340. E-mail: editor@todayswoodworker.com.

Q *I'm building the cigar humidor from issue 46 and my problem is that my Spanish cedar has little bubbles of sap coming out of it. It looked great at the lumberyard, but not so after a couple of weeks in the shop. Did I buy bad stock?*

*Brendan Earls
Davenport, Iowa*

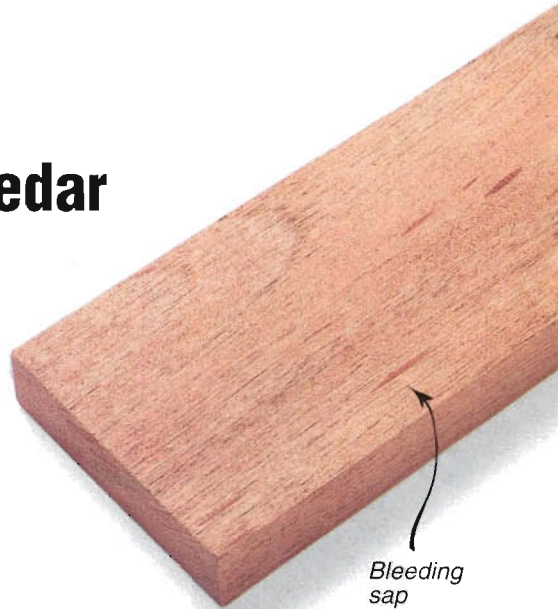
A According to Ernest Drost of Northstar Lumber in Presque Isle, Maine, all Spanish cedar bleeds, regardless of the tree or supplier. The first step in treating this problem is to wipe the board with acetone or denatured alcohol. This removes any pitch that has already bled to the surface. The second step is a little more dramatic: after the parts are cut, machined and ready to install, you need to seal the exterior surfaces. So, while your kitchen oven preheats to 200°F, clamp the pieces of cedar together using C-clamps and 1/4" thick sticking between each layer. Then place the wood in the oven for 6 to 12 hours (the longer the better), with a cup of water to keep the wood from drying out. Check every hour or so to make sure the wood isn't degrading. What you're doing is replicating the process that commercial kilns use.

Ernest adds that the only alternative to the kiln/oven sealing process outlined above is to age the wood for 5 to 15 years.

Q *I've just acquired an old Beaver 8" table saw (model 3200), from a friend of mine, and need a splitter for it. Can you ask your readers if they know of a supplier?*

*Andrew Babiak
Manitoba, Canada*

A If anyone can help Andrew, please send your answer to the address listed at right. We'll forward your info right away.



Q *I have just built a baby's cradle and I would like to know what kind of finish I should use. I'd like to use tung oil if I could find some that is nontoxic for kids.*

*Billy Logan
Via Internet*

A We discussed options with finishing expert Kevin Southwick of The Woodworkers' Store and he had several recommendations. Kevin says the best finish is shellac because it's nontoxic once its alcohol carrier evaporates. Shellac has even been approved by the FDA for certain applications, including drug and candy coatings.

Another viable option is General Finishes' Toymaker Finish, which is guaranteed nontoxic when it's cured. It's available from The Woodworkers' Store by calling 1-800-279-4441.



Pure tung oil is a nontoxic material that is squeezed out of a tung nut, one of those strange vegetable oils that actually hardens with time. However, you have to add metallic dryers or curing can take up to a month - which makes it a poor choice for woodworkers in a hurry (which covers most of us).

Send your Shop Stumpers or replies to Today's Woodworker, P.O. Box 261, Medina, MN 55340. Or e-mail us at: editor@todayswoodworker.com

Industrial Products for the Home Shop

Have you ever returned to your shop on a Sunday evening to sand the weekend's project, and found you were out of sandpaper? Pro shops avoid that problem by buying in bulk. Now that option is available to all woodworkers: Uneeda Enterprises, Inc. of Spring Valley, New York offers a complete line of abrasives, from sanding belts (sold in units of 10) to Velcro® disks (in packs of 50). With minimum orders as low as \$50, this might just be a good time to stock up on sanding belts, drums and other abrasives. *For more info, see the HOTLINE on page 10.*



Uneeda Enterprises, an industrial supplier of high quality abrasives, has entered the consumer market with their complete line of sanding supplies.

New Heavy-duty Jig Saw

There's a new generation of jig saws out there offering options undreamed of just a few years ago. For example, Milwaukee's latest model, the 6276-6 (with a street price under \$200) comes with a heavy-duty variable speed 5.7 amp motor; an anti-splintering device for nice, clean cuts; a special plastic shoe to protect your project as you cut; a built-in dust collection port; orbital action with four levels of adjustment; and a quick change blade system. *For more information, see the HOTLINE on page 10.*



Designed for clean cuts, Milwaukee's new jig saw has plenty of raw power and adjustable orbital cutting action.

A New Angle on Circular Saws



Black & Decker's WoodHawk™ may just change the way we look at circular saws: it doesn't use a 7½" blade, the industry standard for 50 years. Instead, its 6½" blade is designed for today's thinner 2x4s. The \$69 saw has a clear window in the blade guard to view the cut line, a dust collection port and a wide shoe for stability.

B&D says it's 40% quieter than the competition and 1½ pounds lighter. The Woodhawk comes with one carbide blade.

For more info, see the HOTLINE on page 10.



Delta is Hoping for a Feeding Frenzy

Nothing beats a stock feeder for safe, accurate work on a table saw or jointer. A feeder pushes stock against the fence and tabletop as it runs it across the knives or blade.

The problem is that most of the models on the market were developed with big shops in mind, so they're out of the average woodworker's price range.

Not so with Delta Machinery's latest offering, a quick mounting, variable speed unit with a street price of about \$250. The Versa Feeder™ (model number 36-865) features its own built-in dust chute and a micro-adjustable support arm. Delta has also developed a Universal Mounting Base (model 36-864) that lets you mount the Versa Feeder without drilling any holes in your tool tabletops. *For more info, see the HOTLINE on page 10.*



There's no fear of binding with Delta's new small shop stock feeder: the push-style OFF switch is right up front. If for some reason you can't reach the switch, an average woodworker should have no trouble out pulling the 1/8 HP motor and removing or realigning the workpiece.

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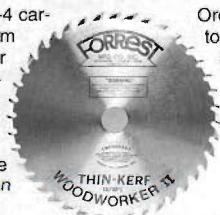
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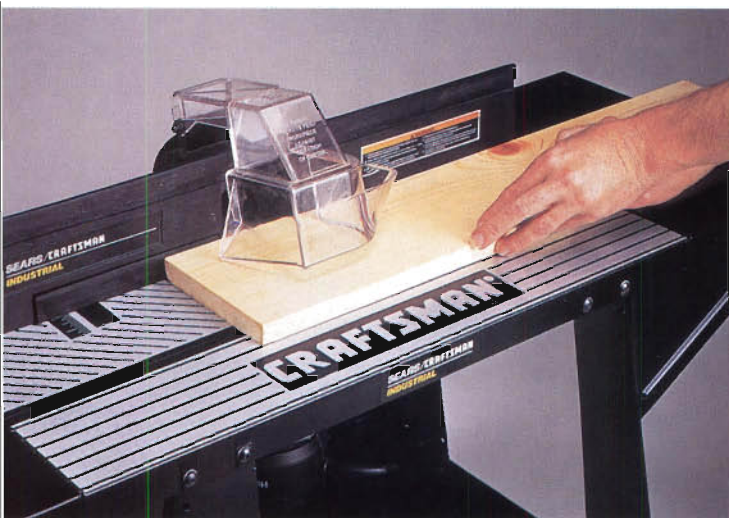
The Maverick sawhorse is easy to store: just turn the legs 90° and hang it on the end of your workbench.

You can level this sawhorse on just about any surface - steps, sloped sidewalks or the uneven terrain of a construction site.



The Maverick Sawhorse - a Breed Apart

If you've been around shops for a while, you've probably seen dozens of versions of "the ultimate sawhorse". Stamar Tools, Inc. of Ellicottville, New York may just have come up with the real thing. The model they shipped to us for shop testing (\$74.95) is lightweight, very strong, easily stored, weather resistant and quite adaptable: Stamar offers kits that can turn it into either an out feed roller stand or a set of legs for your power miter saw. *For more info, see the HOTLINE above.*



HOTLINE

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If you know of a new tool, book or Website other woodworkers would like to hear about, call Rob Johnstone @ (612) 478-8255.

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Saw Trax Adds Second Fence to Their Panel Saw

Those of us who have had to cut a full sheet of plywood in a small shop well understand the appeal of panel saws. The Saw Trax home shop model (which sells for \$999) took the concept a step further by allowing users to switch between a saw and a router. Now the company says their new mid-fence (for \$199) is like adding a radial arm saw and router table to your shop - without taking up floor space. And, they add, you can make your cuts without bending over.

For more info, see the HOTLINE above.

To avoid the awkward feeling of cutting or routing near the floor, Saw Trax offers an optional mid-fence.



Sears Introduces A New Beefed-up Router Table

While Craftsman sells more router tables than any other company, most of them are designed for regular duty. So the Tim Allen types in our shop were pleasantly surprised by the very serious Industrial Router Table Center, a 570 square inch work top with steel extensions and both 1/4" and 1/2" inserts. The center (\$170, with legset) has built-in storage in the leg assembly and an impressive fence system with a jointing feature. *For more information, see the HOTLINE above.*

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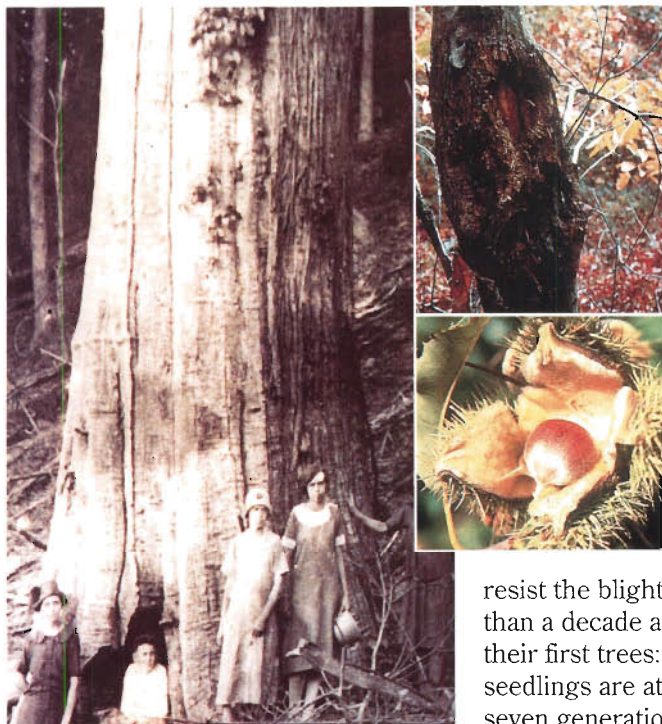
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Return of the American Chestnut

By John English



In the 1926 photo at far left, Carolyn Walker Shelton and her family pay homage to the ghost of an American chestnut tree in the Great Smoky Mountains.

The top inset illustrates blight damage to a young tree, while the bottom one shows one of the nuts harvested by the ACF in its recovery efforts.

Reversing the Blight

American Chestnut Foundation spearheads effort

A century ago, one-fourth of the trees in Appalachia were American chestnuts. From Maine to Georgia and as far west as the Missouri, the hills of almost half a continent were draped each summer with rich, cream colored flowers. Today, only their stumps remain.

The first signs of a blight that decimated the American chestnut were discovered in 1904. Within fifty years the toxin, an Asian pathogen, was both active and fatal throughout the tree's entire native range. As a result, timber-sized chestnuts were eliminated from every landscape they had graced ... until 1983. That was the year that scientists, working with the support of private sponsorship, created the American Chestnut Foundation (ACF). This unique coalition is currently raising a whole new generation of chestnuts that will successfully

resist the blight. They're now less than a decade away from releasing their first trees: several thousand seedlings are at various stages of a seven generation breeding process at a research farm in Meadowview, Virginia. Progress reports are posted on their very interesting Internet site (www.chestnut.acf.org) as are membership details and information on their Backyard Breeding Program - a great opportunity for individuals to participate in the rebirth effort. (American Chestnut Foundation, 469 Main St., Bennington, VT 05201)

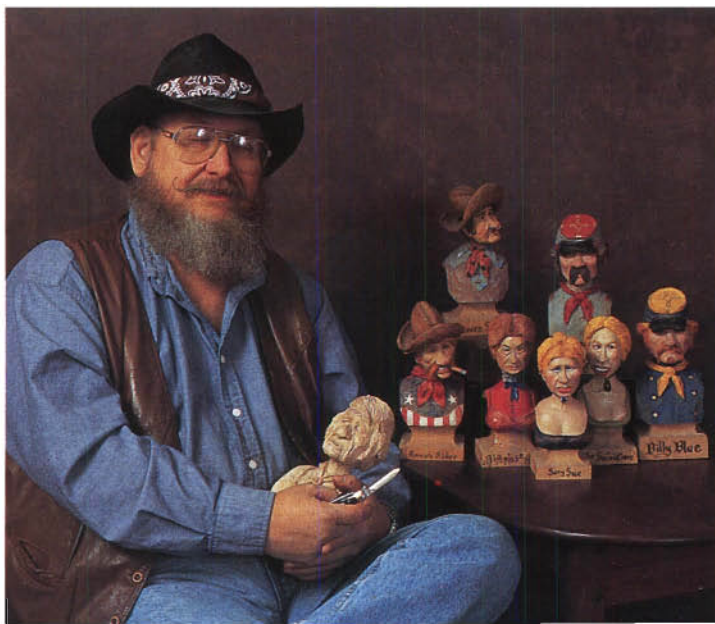
Character Carving

Tom Wolfe teaches the basics

"My whole family have been woodworkers for as long as anyone can remember." So says Tom Wolfe, a native of West Virginia's Appalachian Mountains and perhaps America's leading character carver. In fact, his first memories are of his grandfather Wolfe sawing him a whittling blank.

Dressed in a black cowboy hat and denim duds, Tom's easygoing manner and soft accent are the epitome of the mountains he loves. Nowadays, he spends much of his time teaching his craft to other aspiring carvers at shows and seminars.

Although a professional carver for more than a quarter of a century, Tom's audience has grown dramatically in the past year or so with the release of a six-volume video series. (*Mt. Meadow Enterprises, toll free: 888-522-9663.*) Each tape explores a different character - from dogs and desperados to bunnies and bears. In between, Tom teaches and inspires viewers with tricks and techniques garnered from several generations of Wolfe character carvers.



Appalachia native and renowned woodcarver Tom Wolfe stars in a new series of instructional video tapes covering the basics of character carving.



Antique Tool Hunting

Guidebooks reveal hidden treasures at garage sales

Most woodworkers enjoy visiting a garage sale or flea market every now and then, just to check out the used tools. But how many of us would recognize one of Leonard Bailey's Victor smooth rabbeting planes if we saw it mixed in a box of old wrenches and hacksaws? According to John Walter, author of the *Stanley Tools Guide to Identity & Value*, and the *Stanley Tools 1997 Pocket Price Guide*, you could be



Circular Plane

walking away from a tool worth as much as \$6,000, depending on its condition. Tool collecting has become a big-time hobby, and prices have kept pace with that popularity. It's not unusual for a particularly rare hand tool to be worth more than the family car. For example, an 1872 bronze Miller carpenter's plough demands up to \$16,000 at auction, while a cast iron model is worth as much as \$12,000.

John's books are available from The Old Tool Shop (614) 373-9973.



Stanley's #55 Universal Combination Plane can demand as much as \$700.

Along with the tools, collectors are anxious to acquire original catalogs too - the 1855 Stanley price list alone is worth up to \$800! While these are rare, the Mid-West Tool Collectors Association (808

Fairway Drive, Columbia, MO 65201) has been granted permission to reprint original catalogs (three of which are shown at left). These delightful glimpses at the past provide readers with a unique perspective on the history of woodworking in the industrial age.



Chamfer Plane

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(Circle FREE INFORMATION NO. 10 on pg 38)

Compact Computer Cabinet

Beautiful and efficient, build this compact office with a twist!

By Rick White



Most of us with a few annual growth rings under our bark can recall a time when there were no personal computers. That was back when we still actually “dialed” our phone numbers. Today, most of us would be lost without our computers, both at work and at home.

The trouble with computers (unless you’re talking about the laptop variety), is that they need a few accessories before they’re ready to go to work. You need a printer, a modem, the keyboard, the mouse, software manuals and all those diskettes and CDs that eventually accumulate.

While this project started out as a solution to that clutter, the introduction of the swing-out table moved it to the next level. Now I have an extremely efficient computer center that offers plenty of room to spread out and work, and still closes up to conceal major works in progress!



Figure 1: Position the screws that hold the carcass together by drilling pilot holes in the dadoes, then counterbore them from the outside.

Start by Milling the Carcass

I built our computer cabinet out of birch plywood and solids because we wanted to apply a whitewash finish to this light colored, tight grained wood to match our existing furniture.

The first step in construction is to cut the carcass parts to size. These include the sides, top, fixed shelves, upper and lower dividers, two bottom panels and the back (pieces 1 through 8). The shelves, top and bottoms are secured to the sides by gluing and screwing them into dadoes, some of which are stopped while others are plowed all the way across the sides and fixed shelves. Refer to the **Pinup Shop Drawings** between pages 20 and 21 for the locations and dimensions of these dadoes, and also for the dimensions of the rabbets that hold the back in place.

Chuck a straight bit in your portable router and run it against a long straightedge to plow the dadoes and rabbets. **Note:** All our dimensions assume that the plywood is actually 3/4" thick, so check your stock to ensure that's true, or make adjustments accordingly. Before you set your router aside, plow two more dadoes, one in each side of the lower divider, to hold the bottom panels in place. One of these is stopped while the other goes all the way through (see the **Pinup Shop Drawings**).

I mentioned before that I glued and screwed the carcass together. This method lets you build the entire carcass without using any clamps. There are two little tricks here that make this possible. First, I got all the screw holes to line up properly by drilling pilot holes from the inside out, setting the point of my drill bit in the exact center of each dado (see **Figure 1**). Then I drilled pilot holes in the shelves half the diameter of my screws while the counterbored holes in the sides are the same diameter as the screws. This lets the screw pull the two parts together tightly during assembly.

Planning Ahead: The Computer Cabinet

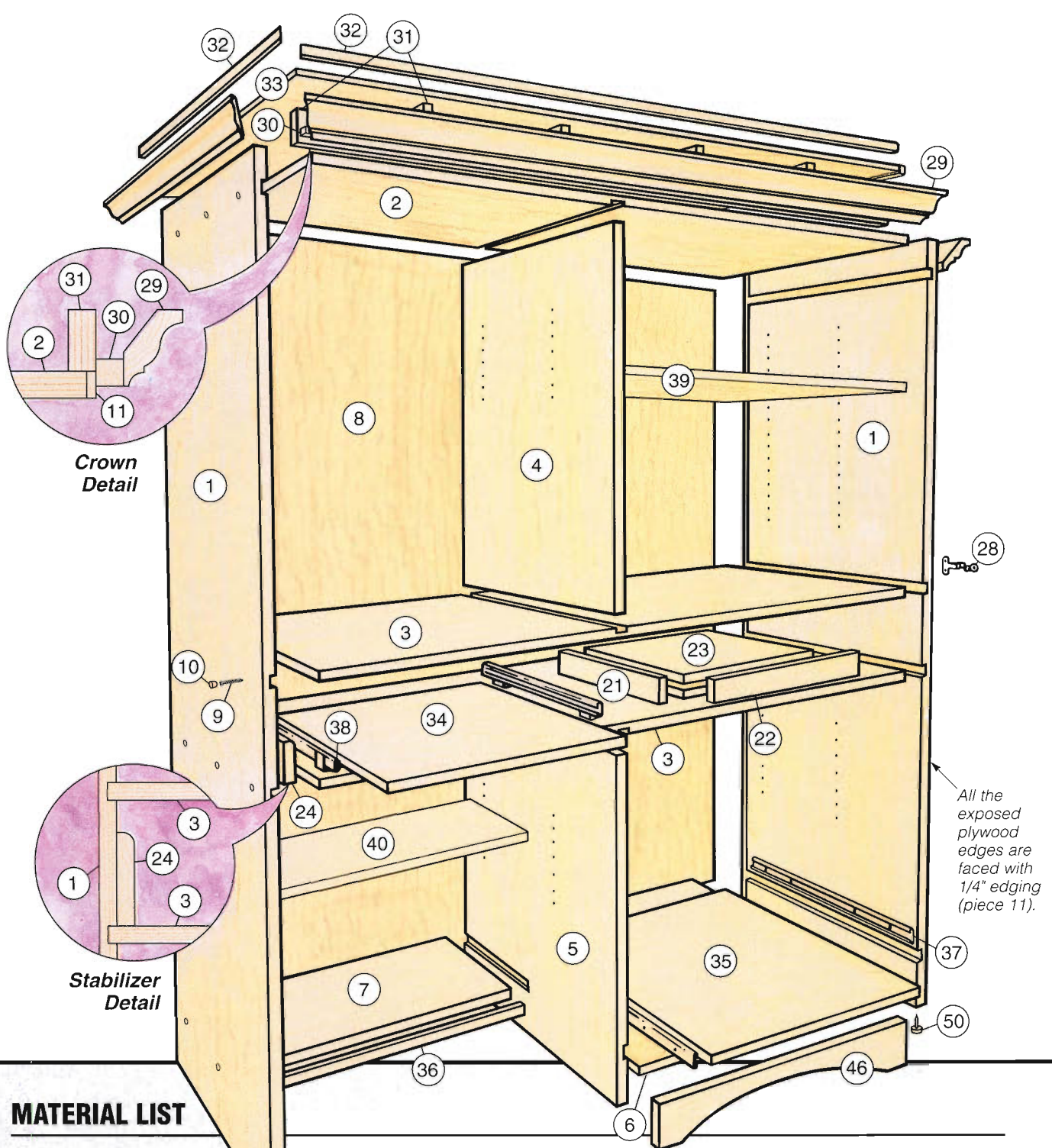
The 1/4" and 3/4" hardwood plywood used in this project should be good on both sides (grade AA or BB face). We recommend plain sliced veneer rather than rotary cut, if it's available. You'll need the following quantities of solid hardwood and veneered stock to complete this project:

- 30 bf. 3/4" birch lumber
- 2 sheets 1/4" birch plywood
- 1/4 sheet 1/2" birch plywood
- 3 sheets 3/4" birch plywood

Assemble the Carcass

Find a nice level floor to lay out your main cabinet parts: this will help to keep everything square. Begin assembling the carcass by attaching the dividers to the fixed shelves with glue and screws (pieces 9), making sure the lower divider is oriented correctly. Check that everything is nice and square before setting them aside to dry. Use the same glue and screw method to attach these two subassemblies to the sides, again making sure their orientations are correct. Fill the holes with hardwood plugs (piece 10).





MATERIAL LIST

	T x W x L		T x W x L
1 Sides (2)	3/4" x 23 1/2" x 70"	14 Worktop Side Trim (1)	1/2" x 1 1/2" x 17 7/8"
2 Top (1)	3/4" x 23 3/4" x 47 1/4"	15 1/8" Worktop Edging (1)	1/8" x 3/4" x 44 5/8"
3 Fixed Shelves (2)	3/4" x 23 3/4" x 47 1/4"	16 1/4" Worktop Edging (1)	1/4" x 3/4" x 18"
4 Upper Divider (1)	3/4" x 23 3/4" x 34 3/4"	17 Short Cleats (2)	3/4" x 3/4" x 2 1/2"
5 Lower Divider (1)	3/4" x 23 3/4" x 27 1/8"	18 Long Cleat (1)	3/4" x 3/4" x 16"
6 Deep Bottom Panel (1)	3/4" x 23 3/4" x 23 5/8"	19 TV Swivel Pullout (1)	360° x 130 lbs.
7 Shallow Bottom Panel (1)	3/4" x 11 1/2" x 23 5/8"	20 TV Swivel Screws (12)	#10 x 5/8 pan head
8 Back (1)	1/4" x 47 5/8" x 67"	21 Pivot Deck Sides (2)	3/4" x 1 1/2" x 16 3/8"
9 Wood Screws (100)	#8 x 1 5/8"	22 Pivot Deck Front & Back (2)	3/4" x 1 1/2" x 14 3/8"
10 Hardwood plugs (50)	3/8" dia.	23 Pivot Decks (2)	3/4" x 13 3/8" x 16 3/8"
11 Edging (4)	1/4" x 3/4" x 96	24 Worktop Stabilizer (1)	3/4" x 4" x 23"
12 Worktop (1)	3/4" x 17 7/8" x 44 5/8"	25 Worktop Legs (2)	3/4" x 2" x 31 3/8"
13 Drawer Front (1)	3/4" x 6" x 47 5/8"	26 Worktop Leg Stretchers (2)	3/4" x 2" x 9"

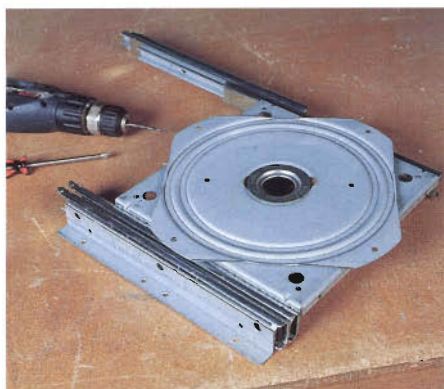


Figure 2: The hidden worktop is anchored to the cabinet by a TV swivel so it can easily pull out and swing into place when needed.

Install the top and two bottom panels next, again checking that everything is square. Tack the back in place next with 3/4" brads every 12", then rip the edging (piece 11) to face the sides, shelves, dividers, bottoms and top. Apply this molding with glue and 4d nails spaced every 8 inches or so, predrilling for the nails to avoid splitting the molding.

A Pullout Worktop

Our computer cabinet's hidden worktop is built to look like a drawer in the center of the cabinet. It's actually a plywood shelf with a solid birch front that swivels out on some hardware designed for TV sets in entertainment centers (see **Figure 2**). Cut the worktop (piece 12), drawer front (piece 13) and side trim (piece 14) to size, then move to your router table to create the profile on the outside face of the drawer front with a 1/4" roundover bit. Face one of the long edges of the worktop with 1/8" thick solid hardwood stock (piece 15), and one short edge with 1/4" thick edging (piece 16). Cut the rabbet (see **Pinup Shop Drawings**) in the side trim and attach it to the remaining short worktop side.

The worktop is attached to the drawer front with two short cleats (pieces 17) and one long cleat (piece 18). Glue and screw these in place, predrilling for the wood

screws and countersinking them (see the **Pinup Shop Drawings** for the screw locations and the position of the drawer front in relationship to the worktop edge).

The TV swivel (piece 19) is mounted with screws (pieces 20) directly to the bottom of the worktop (see **Pinup Shop Drawings** for location).

The bottom of the TV swivel is essentially a pair of drawer slides. To attach them to the carcass, you need to build a small six-piece deck made up of two sides (pieces 21), a front and a back (pieces 22), and two decks (pieces 23). All six pieces can be cut from scrap 3/4" stock as they won't be visible when the cabinet is com-

Computer Desk Hardware Kit

The hardware kit available for this project includes the shelf supports, drawer slides, TV swivel, hinges and nylon glides.

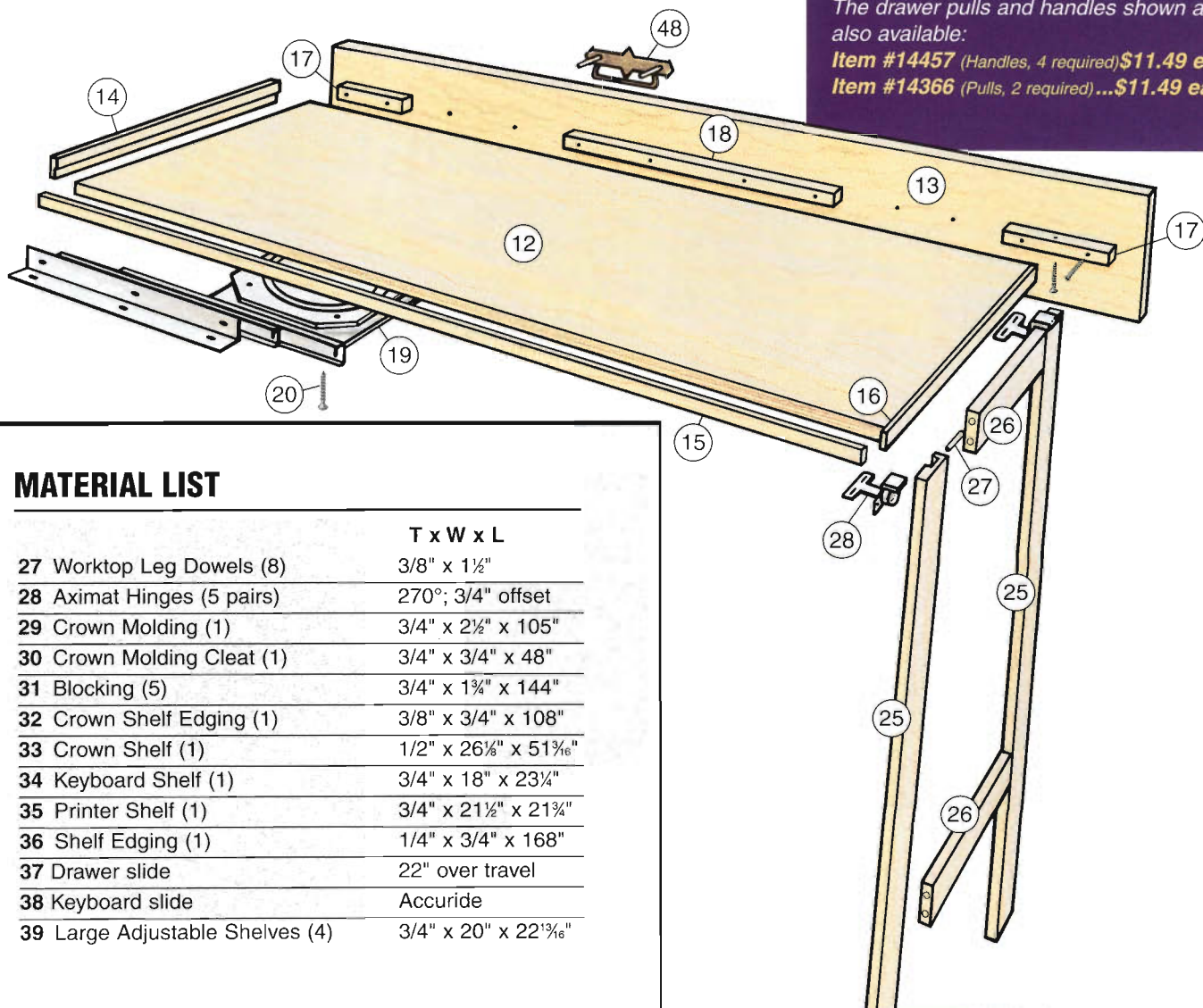
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The drawer pulls and handles shown are also available:

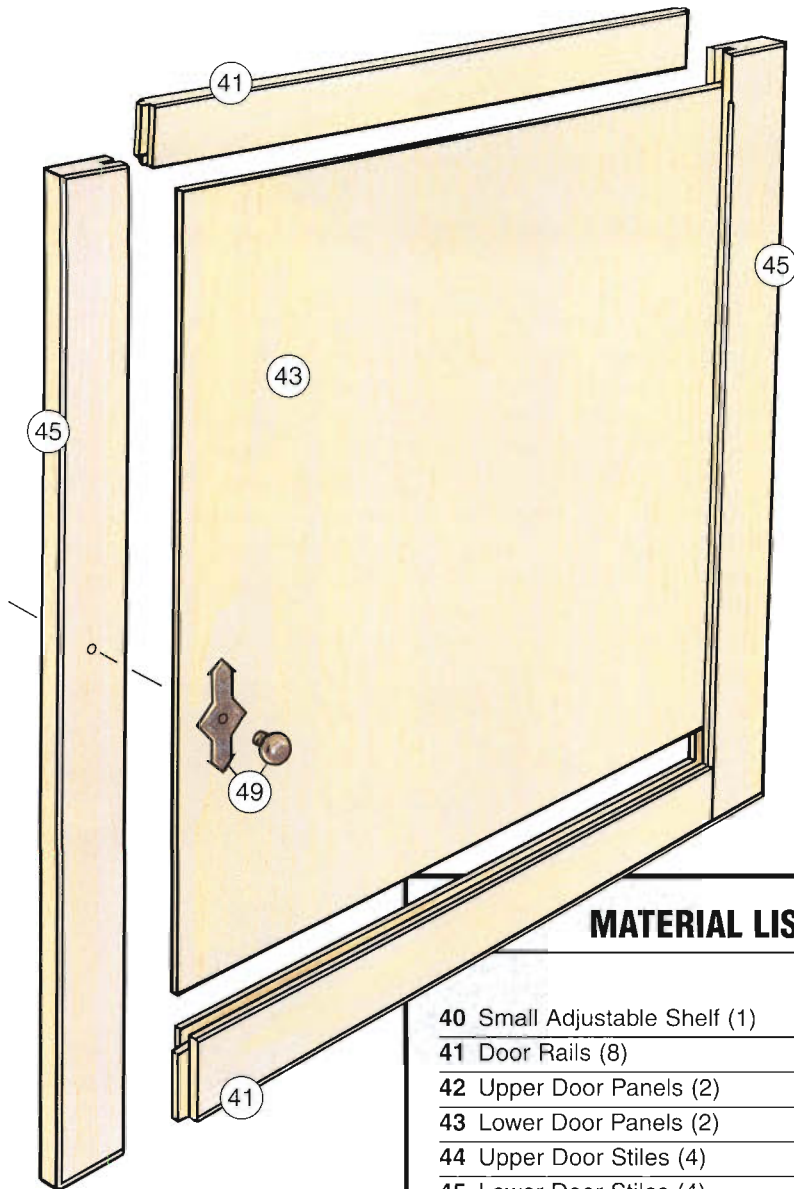
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MATERIAL LIST

	T x W x L
27 Worktop Leg Dowels (8)	3/8" x 1 1/2"
28 Aximat Hinges (5 pairs)	270°; 3/4" offset
29 Crown Molding (1)	3/4" x 2 1/2" x 105"
30 Crown Molding Cleat (1)	3/4" x 3/4" x 48"
31 Blocking (5)	3/4" x 1 3/4" x 144"
32 Crown Shelf Edging (1)	3/8" x 3/4" x 108"
33 Crown Shelf (1)	1/2" x 26 1/8" x 51 1/8"
34 Keyboard Shelf (1)	3/4" x 18" x 23 1/4"
35 Printer Shelf (1)	3/4" x 21 1/2" x 21 1/4"
36 Shelf Edging (1)	1/4" x 3/4" x 168"
37 Drawer slide	22" over travel
38 Keyboard slide	Accuride
39 Large Adjustable Shelves (4)	3/4" x 20" x 22 1/8"



MATERIAL LIST

	T x W x L
40 Small Adjustable Shelf (1)	3/4" x 11 1/2" x 22 1/8"
41 Door Rails (8)	3/4" x 2 1/2" x 19 7/8"
42 Upper Door Panels (2)	1/4" x 19 3/4" x 30 3/8"
43 Lower Door Panels (2)	1/4" x 19 3/4" x 22 3/4"
44 Upper Door Stiles (4)	3/4" x 2 1/2" x 34 1/2"
45 Lower Door Stiles (4)	3/4" x 2 1/2" x 24"
46 Arched Toekicks (2)	3/4" x 4" x 22 3/4"
47 Shelf Supports (20)	5mm. nickel
48 Handles (2)	Southwestern
49 Pulls (4)	Southwestern
50 Glides (4)	nylon

pleted. They're simply butt jointed, then screwed and glued together. Screw the TV swivel to this deck, then install the worktop/swivel subassembly with wood screws driven up through the lower fixed shelf, as shown in the **Pinup Shop Drawings**.

Cut the worktop stabilizer (piece 24) next, and test fit it against the left wall of the cabinet. This stabilizer supports the pivoting shelf in its closed position and keeps the drawer front aligned properly. Shape the inside edge of the piece with a 1/2" roundover bit in your router table and attach it to the side with glue and screws.

Leg Assembly

The leg assembly folds up and lies on top of the worktop when not in use. It's comprised of two legs (pieces 25) and a pair of stretchers (pieces 26), all cut from hardwood stock. Use glue and dowels (pieces 27) to join the legs to the stretchers (see **Pinup Shop Drawings** for dowel locations). After the glue has cured, move to your router table and round over all the edges. Then bore 1/2" deep holes for the Aximat hinges (pieces 28) using a standard 35 mm Forstner bit, as shown in **Figure 3**. (These hinges are a great piece of specialty hardware, with a full 270° swing and a 3/4" offset.) Predrill for the screws that come with the hinges, then drive them home.

Make the Crown Assembly

The crown molding (piece 29) is mitered to fit across the front and sides of the cabinet, then nailed in place with a scrapwood cleat (piece 30) behind it for stability. I found a stock crown molding at my local lumberyard, so the profile of yours may not match it exactly (see the **Full-size Pattern**). Apply a little glue to the miters before installing the crown molding, then predrill it for 4d finish

nails and set them after they're driven (this is a good time to set the nails in the edging throughout the cabinet, too). Fill the holes and sand them flush. Now glue the blocking (pieces 31) into the cavity in the top of the cabinet (see **Pinup Shop Drawings** for locations).

Shape the crown shelf edging (piece 32) with a 1/4" roundover bit, then miter it and attach it to the front and sides of the crown shelf (piece 33). Secure this subassembly to the blocking with glue and screws, and move on to installing the hardware.



Figure 3: Install the Aximat hinges by boring a couple of 35 mm holes, then screwing the hinges in place.



Figure 4: You can make the tenons on the ends of the door rails with a tenoning jig like this one featured in issue 34 of *Today's Woodworker*.

Slides and Shelves

The front edges of both the keyboard and printer shelves (pieces 34 and 35) are faced with 1/4" thick hardwood stock (piece 36). Simply cut this molding to length and apply it with glue and 1" brads, setting and filling their heads. The printer shelf is mounted on a standard 22" over-travel slide as shown in the inset below, while the keyboard shelf rides on an Accuride™ keyboard slide that comes with installation instructions (pieces 37 and 38). Use the rest of your 1/4" molding to edge the four large and one small adjustable shelves (pieces 39 and 40), then move on to building the doors.

Make the Doors

The only difference between the upper and lower doors is that the lower doors are a bit shorter. Knowing that, you can cut all eight rails (pieces 41) to size, then mill a 1/2" deep groove in one edge of each for the upper and lower door panels (pieces 42 and 43). Make these cuts with a 1/4" wide dado head in your table saw, then mill the same groove in each of the upper and lower door stiles (pieces 44 and 45). When you're done, lower the blade to 1/4" and use a tenoning jig (see **Figure 4**) to cut a tenon on each end of each rail (see the **Pinup Shop Drawings**).

Test fit the components of each door and when everything fits just

right, assemble the doors by gluing the corner joints only: the panels must float freely to allow for wood movement.

Cut the two decorative toekicks (piece 46) on your band saw, following the profile shown on the **Full-size Pattern**. Sand the curves smooth, then install one toekick on the lower left door and one under the bottom of the main cabinet, trimmed to fit in the location shown on the **Pinup Shop Drawings**. Secure them with glue and wood screws through counterbored holes. (Note: the toekick on the door is attached from the inside.) Plug these holes with hardwood plugs and sand flush.

Hang the Doors

The same hinges I used on the worktop legs are used to hang the doors (see **Figure 5**). These doors overlay the entire cabinet except the false drawer front that hides the worktop.



Figure 5: Use 270° Aximat hinges for full clearance. Accuride slides (inset) provide easy access to the printer and keyboard.

Install the hinges according to the instructions included (see **Pinup Shop Drawings** for locations) then adjust the doors for a perfect fit. Drill holes and temporarily install the shelf supports, door handles and drawer pulls (pieces 47, 48 and 49) at the locations shown on the **Pinup Shop Drawings**, then remove all the hardware and refer to the sidebar at right for finishing instructions. When the finish is dry, reinstall your hardware, add some nylon glides (pieces 50) under the cabinet and go to work!

FINISHING THOUGHTS

White wash

Sometimes when a piece of unfinished wood has been exposed to just the right amount of sun, wind and water, it attains a wonderful light colored patina. A whitewash finish is very similar to that rare, naturally occurring phenomenon.

There are several ways to achieve the light colored treatment generally called a whitewash. One technique is to use a thinned white flat latex or oil paint. There are also spray-on stains that create the same effect. We used an oil based stain that simply wipes onto the workpiece, followed by clear lacquer finish.

The challenge in each of these approaches is to keep the coverage even - to significantly lighten the tone of the wood without hiding the grain. On our test pieces we experimented with a light undercoat of clear sealer to help keep the whitewash tone even. This proved to be a mistake. It proved very difficult to get a balanced finish using this technique because the sealer inhibited absorption of the stain.

As with any finishing operation, the best results will be achieved with proper surface preparation. Sand the project very smooth and treat each surface exactly the same. Compare all the pieces and make adjustments for color as you work. Your efforts will be well rewarded.



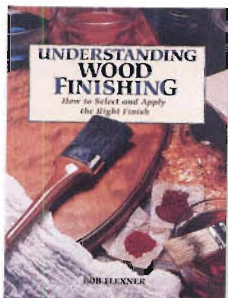
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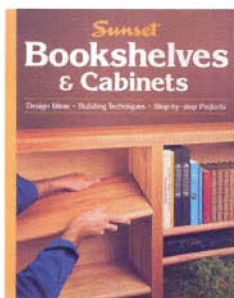
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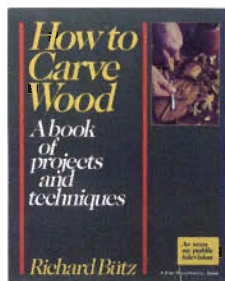
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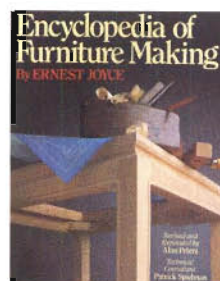
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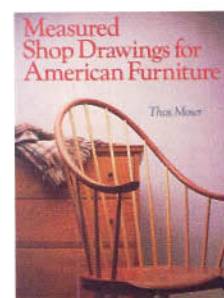
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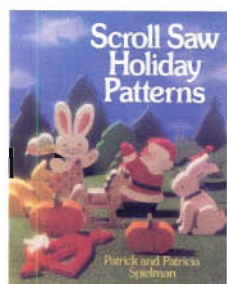
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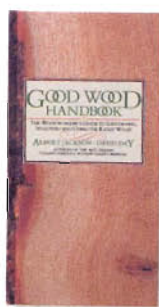
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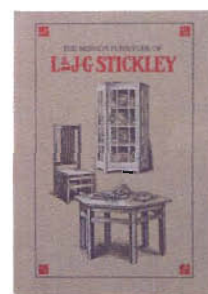
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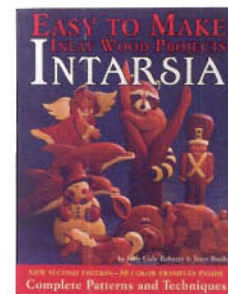
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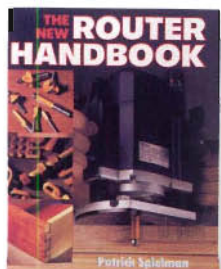
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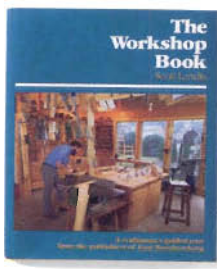
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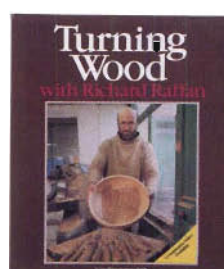
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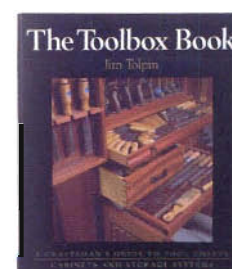
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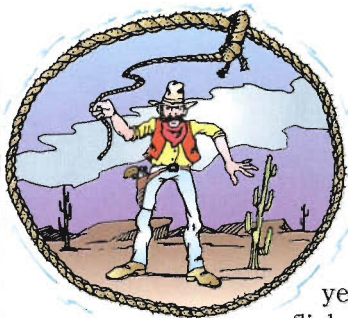
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Rockin' Bronco

Return with us now to those thrilling days of yesteryear, when a rocking horse and a little imagination were all you needed for a grand adventure.

By Rob Johnstone



One of my earliest memories, undimmed by passing years, is of a flickering black and white TV playing the theme from the Lone Ranger. I galloped across the living room prairie with Roy, Gene, Cisco and Hop-a-long in tow. Those Saturday morning heroes represented everything fine and noble about cowboys - adventure, honor and freedom. Their equine companions were heroes too, and were usually the brains of the outfit!

With those role models to live up to, project designer Dan Jacobson had high standards for this horse. It had to be solid, great to look at and, most importantly, fun. Cherry and walnut helped us meet the first two criteria. For the third, Dan came up with a unique spring and pivot system and a leaping profile so the rider can feel the rush of flying over a deep gully.

Body Building

The first step in creating the horse's torso is to glue up two 3/4" thick panels which will later be face glued together to create a blank for the main body (piece 1).

"There's rustlers in them there hills. You can't see 'em, you can't hear 'em, but you can smell 'em!"

For stability, use a number of 3" to 6" wide boards and joint their edges. Glue them together without biscuits or dowels, as these may pop up in an inconvenient place later on when you start band sawing. As you apply clamping pressure, make sure the panels don't bow; this section must be absolutely flat.

When the glue is dry, sand the panels with 100 grit paper and laminate them together by applying an even coat of glue on one face of each, and clamping. If your clamps don't reach deep enough to keep the centers tight together, place a heavy weight in this area while the glue dries.



Two-year-old sheriff Kelsey Heiland and her trusty mount are all set to lead a posse after the bad guys.

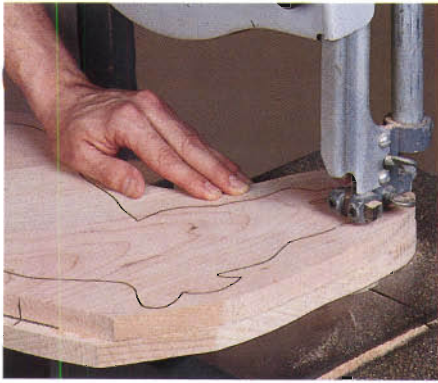


Figure 1: Use a template to transfer the profile of the main body onto a blank, then cut it out on a band saw equipped with a 1/8" blade.

Before you cut any pieces to final shape, it's a good idea to create templates for all the shaped pieces (see the **Full-size Pattern** between pages 20 and 21). Transfer each pattern to 1/8" hardboard stock (one way to do this is to photocopy it and attach the resulting sheets with a spray adhesive). Then cut each profile on your band saw and refine the edges with sandpaper and files. Use the proper template to transfer the main body's pattern to the glued-up blank. With that done, you can cut the main body to shape with a 1/8" (14 teeth per inch works well) blade installed in your band saw (**Figure 1**).

The torso is built out to its final thickness by adding two more panels to each side. Note that the inside pair of panels are notched to match the profile of the spring mechanism's cavity. You can gang saw the two inner panels (pieces 2), by holding them



Figure 2: Build up the torso of the rocking horse in three sub-assemblies, then glue them together. Note the hollow core of the torso.

Hobbyhorses, the precursors of modern rocking horses, have diverse cultural roots. For centuries they were included in English, Spanish and even Javanese traditional dance rituals. In the 19th century, they evolved into the rocking and carousel horses we're all familiar with today.



together with two-sided tape. Do likewise with the 1/2" thick outer panels (pieces 3), then dry fit all four panels to the main body.

Some of the main body's outside edges need to be rounded over now as they will be difficult to reach after the horse is assembled. Your dry fit will reveal these areas. Round them over using a portable router with a 3/8" radius router bit, then glue and clamp the body panels in place (see **Figure 2**). After the glue dries, take some time to sand the front, back and top of the completed assembly, but be careful not to alter any profiles by over sanding, especially where the legs, saddle and saddle sides will be attached to the body.

Making the Front and Back Legs

The blanks for the front and back legs (pieces 4 and 5 respectively) are made up of two laminations of cherry (laminated lumber is stronger than a

single thickness for these somewhat delicate parts). Transfer the leg patterns to the 1/2" thick blanks using the relevant hardboard templates, and pay special attention to grain direction (see **Figure 3**). I purposely stacked my panels so that the grain of each ran just a few degrees out of phase with its mates, to make each leg stronger. Cut all eight parts on the band saw (I stacked each set of four like pieces and gang cut them to ensure an exact match), then give each panel a thorough sanding. (**Note:** Don't glue up the two halves of each leg yet.)



Figure 3: As each leg is made up of two laminations, you can add considerable strength by paying special attention to grain patterns.

Make the Foot Support

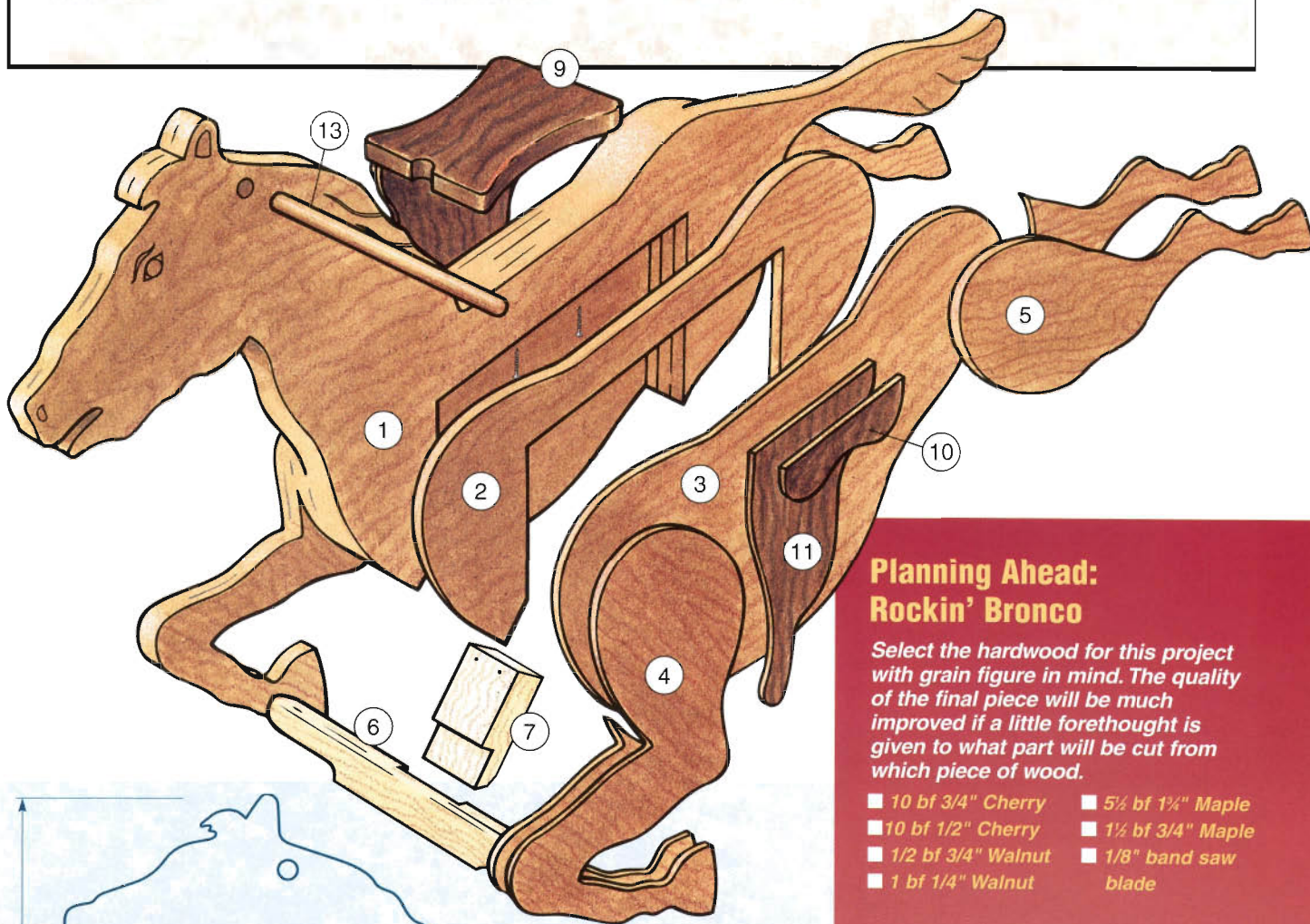
I decided to make the foot support (piece 6) and its strut (piece 7) from maple (the same species I used for the base), just to set them apart from the actual body of the horse. These two pieces are joined together by a dado in the foot support that matches a rabbet on the end of the strut (Dimensions on page 26). Cut both joints on your table saw (a dado head speeds up this process), then dry fit the two pieces together.

When you're happy with the fit, remove the foot support and slice a 45° relief across its bottom edge (see **Full-size Pattern**), again using your table saw. Then drill screw holes in

MATERIAL LIST

	T x W x L
1 Main Body (2)	3/4" x 16" x 39 1/2"
2 Inner Body Panels (2)	3/4" x 9 3/4" x 19"
3 Outer Body Panels (2)	1/2" x 9 3/4" x 19"
4 Front Leg Laminations (4)	1/2" x 13" x 11"
5 Back Leg Laminations (4)	1/2" x 6 1/4" x 20 1/2"
6 Foot Support (1)	1 3/4" x 1 1/8" x 12"
7 Strut (1)	1 3/4" x 3" x 5"

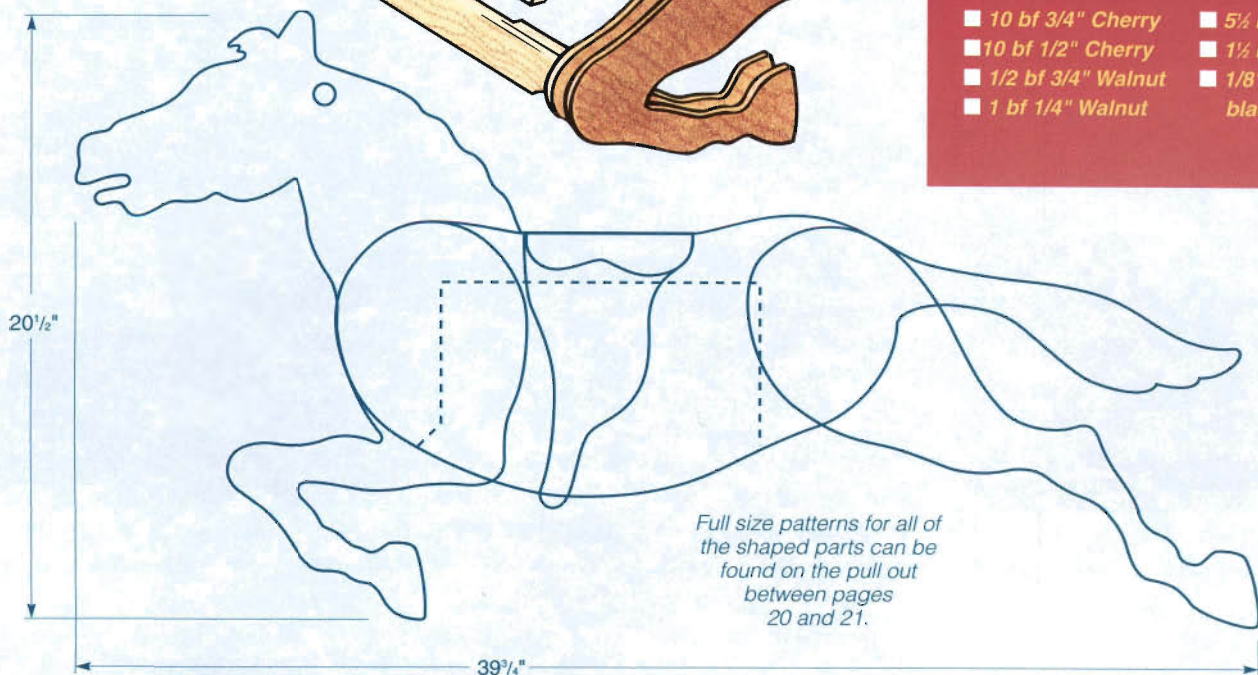
	T x W x L
8 Long Screws (4)	#10 x 3"
9 Saddle Top (1)	3/4" x 6" x 6"
10 Saddle Sides (2)	1/4" x 6" x 1 1/2"
11 Saddle Straps (2)	1/4" x 5 3/4" x 9 3/4"
12 Short Screws (8)	#6 x 1 1/2"
13 Handle (1)	3/4" dia. x 8"



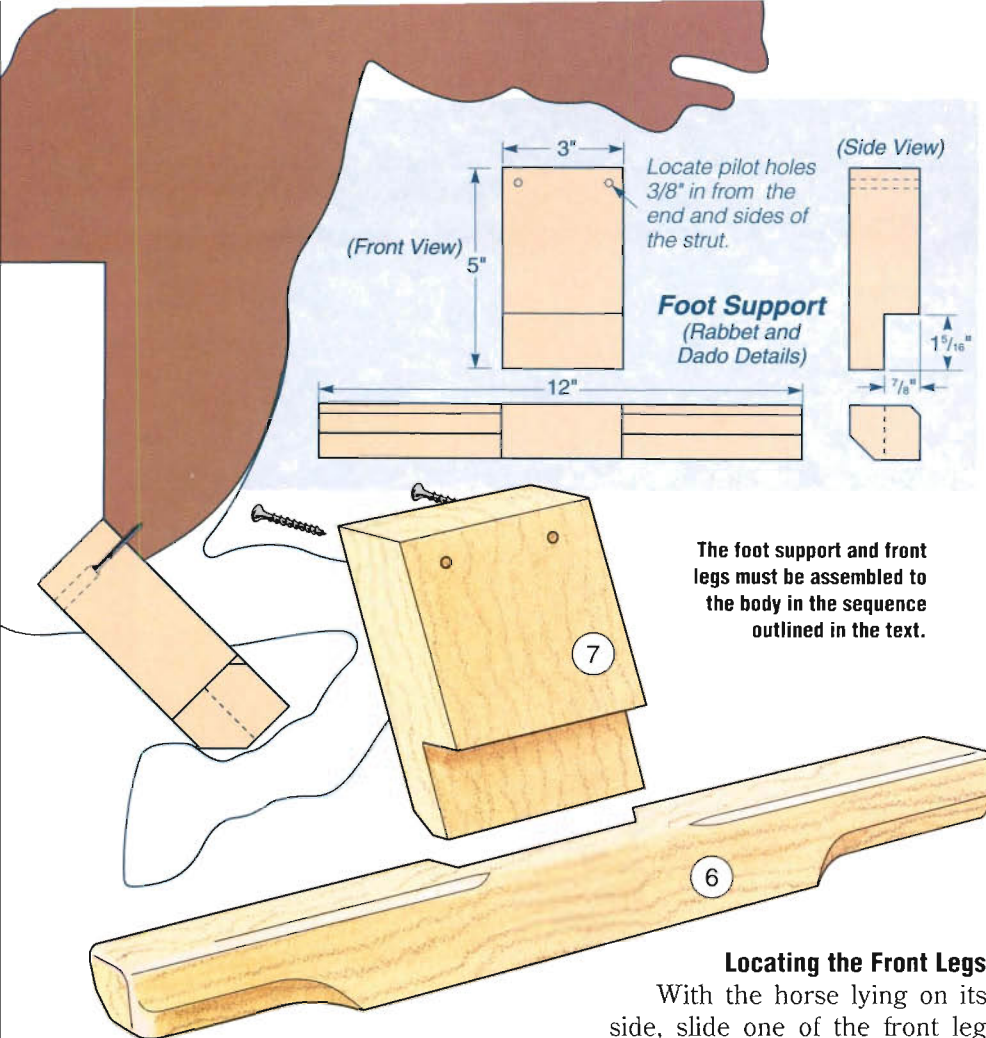
Planning Ahead: Rockin' Bronco

Select the hardwood for this project with grain figure in mind. The quality of the final piece will be much improved if a little forethought is given to what part will be cut from which piece of wood.

- 10 bf 3/4" Cherry
- 10 bf 1/2" Cherry
- 1/2 bf 3/4" Walnut
- 1 bf 1/4" Walnut
- 5 1/2 bf 1 1/4" Maple
- 1 1/2 bf 3/4" Maple
- 1/8" band saw blade



Full size patterns for all of the shaped parts can be found on the pull out between pages 20 and 21.



The foot support and front legs must be assembled to the body in the sequence outlined in the text.

Locating the Front Legs

the strut at the locations shown on the drawing shown above. Glue the foot support to the strut, allow the glue to cure and scrape off the excess. Use the long screws (pieces 8) to temporarily secure this assembly to the 45° surface at the front of the body cavity. (See the drawing above for location.)

With the horse lying on its side, slide one of the front leg laminations over the support (see **Figure 4**). If this is too tight a fit, remove a small amount of material from the support rather than the leg. Make sure the lamination is positioned exactly where it should be (see **Full-size Pattern**), then use a pencil to trace the profile of the horse's torso on the laminations inside face. Repeat this process on the opposite side, then use your band saw to cut along the pencil lines. Now glue each of these trimmed laminations to an untrimmed one, being careful to create left and right legs. After the glue dries, sand these legs and use your 3/8" roundover bit to shape any edges that will be exposed after they are attached to the body: a dry fit will show you which ones.

Use your band saw and drum sander to shape the foot support to its final shape (see **Full-size Pattern**). Finish sand the support and install it with glue and screws. Then slide the front legs over the foot support and glue and clamp them in place.



Figure 4: Dry fit the front leg laminations around the foot support and, if necessary, remove a little material from the support for a perfect fit.

Attaching the Back Legs

The back legs are made and installed in exactly the same way as the front ones, except that you don't have to deal with the foot support assembly when fitting them. Just consult the **Full-size Pattern** for locations, then trim the inside laminations to fit around the horse's body. Glue up the legs and sand them as before. Remember that you want to shape the parts to give an impression of movement and life, but not to carve every little hair. With that in mind, you can use a palm sander with 120 grit paper to soften and shape the legs (see **Figure 5**). Take your time and remember that sometimes, when shaping wood, less is more.

Walnut Accents & Details

Our horse's saddle is made of walnut, both to give it a leathery look and to provide some contrast with the cherry. The saddle top (piece 9) is 3/4" thick, while the remaining accents are all cut from 1/4" stock. Use the **Full-size Pattern** to lay out and cut the saddle top to shape, then move on to the saddle sides (pieces 10) and straps (pieces 11). Clean up the saw marks with a drum sander chucked in your drill press, then dry fit these pieces to be sure they fit properly between the front and back legs, and sit well on the horse's back.



Figure 5: Use a palm sander to add final shape to the horse's legs after they have been installed. Be careful not to over-sand.



Figure 6: The saddle top is secured to the horse's body with glue and screws driven up through the body cavity.

The saddle top is attached to the horse's body with two #6 x 1½" screws (pieces 12) driven up through the top of the body cavity. Predrill for these screws and drive them all the way in with the saddle removed, to make sure they aren't too long. Then retard them until they're just proud of the horse's back and press the saddle down onto them: this establishes locations for predrilling the bottom of the saddle top (make sure you don't drill through!), then apply some glue and drive the screws home (**Figure 6**). Round over the relevant edges of the saddle sides and straps (see **Full-size Pattern**), then glue and clamp these parts in place.

Installing the handle (piece 13) is next. Use a drill press or a portable drill guide to make sure the hole for the handle (its location is shown on the **Full-size Pattern**) is drilled at a true 90°. Mask around the hole, insert the dowel until it's 1½" shy of its final position and apply glue. Then push it all the way in and remove the tape when the glue is dry.

The relief carving on the ears, eyes, nostril, mane and tail seems to bring the horse to life. While you could complete the project without them, both Dan and I feel it would be missing something special. Don't worry if you've never attempted relief carving: you'll find instructions in the sidebar on page 27.

Base Construction

The base is constructed from hard maple, both to separate it from the horse's body and to give it extra weight and strength.

After cutting the base ends (pieces 14) to size, dado them while the stock is still rectangular. (For part dimensions and the locations of the dados see the diagram on pg. 26) Mark the curves then cut them on your band saw and smooth the blade marks with your belt sander. Cut the through mortise in the stretcher (piece 15) next, again referring to the drawing on page 26 for location and dimensions. I simply drilled out most of the stock with a Forstner bit and cleaned up the cut with my saber saw and a sharp chisel.



Figure 7: There's only one tenon in this project so it's quicker to nibble away the waste with a regular blade than installing a dado head.

Attach the ends to the stretcher with counterbored #10 x 3" screws (pieces 8) and glue. Plug the bores with flat cherry plugs (pieces 16), then sand them flush.

The bottom of the riser (piece 17) is tenoned to fit the through mortise you cut in the stretcher (see tenon dimensions on page 26). As it's just one piece, I nibbled off stock with my regular table saw blade (see **Figure 7**), rather than taking time to set up a dado head. Use the **Full-size Pattern** to mark the locations of the 1" diameter hole in the riser and the curve on its top edge. Use a drill press to bore the hole, then band saw the curve (see **Figure 8**) and belt sand it smooth.

*"Come on boys,
lets head 'em
off at the pass!"*



Deputy Cody Holm, age 3, and his loyal steed leap a gully as they round up the rustlers.

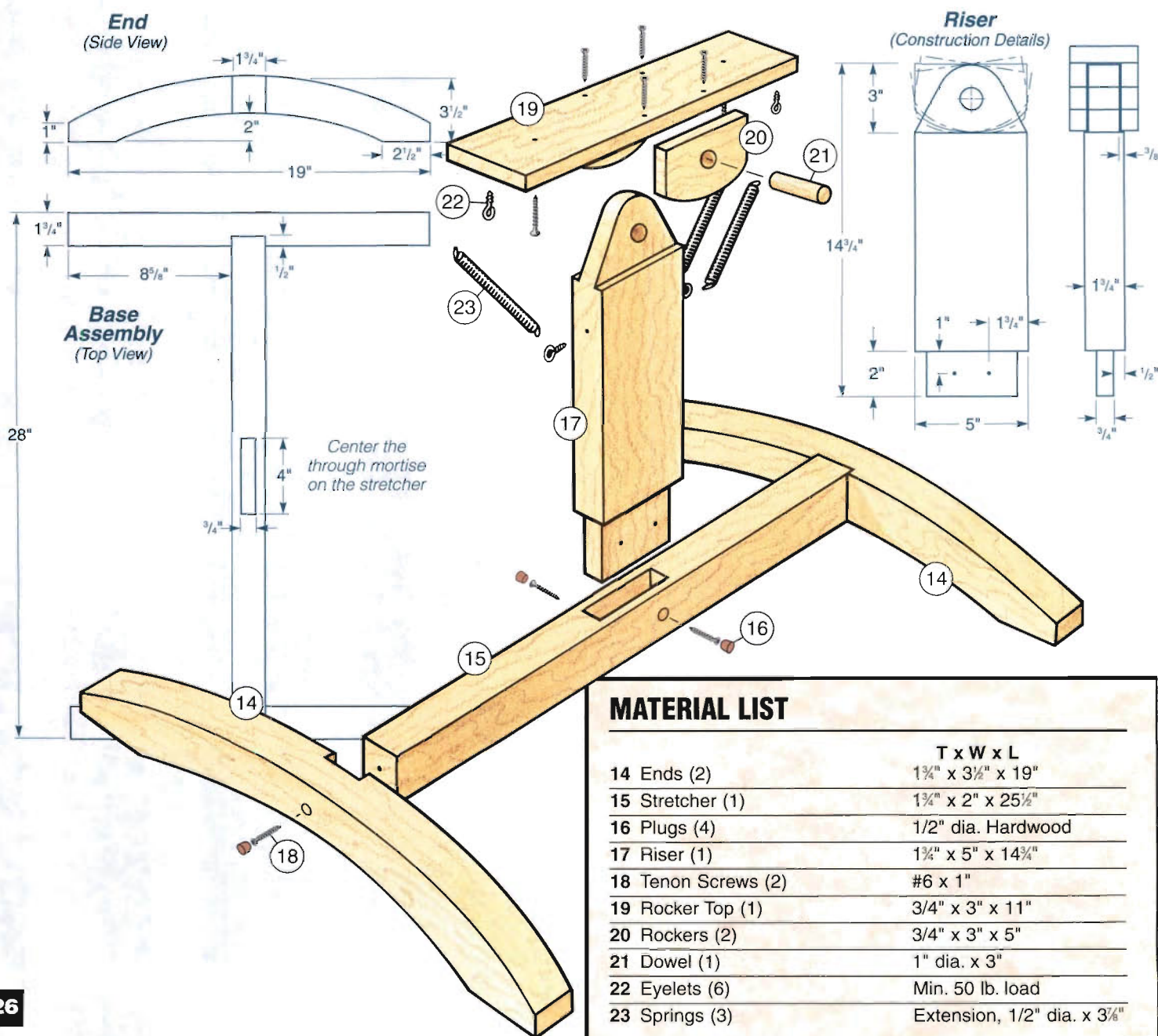


Figure 8: Saw the curve on the top of the riser before cutting the shoulders: it's easier to draw the curved line with the piece still square.

Form the shoulders on the top of the riser next, using your table saw's miter gauge to ensure accurate cuts (see shoulder dimensions below). Sand the shoulders, then glue the riser's lower tenon into the through mortise. Secure it with counterbored 1" screws (pieces 18), capping them with hardwood plugs.

Making the Rocking Platform

The rocking platform subassembly fits over the top of the riser and is attached with a dowel and springs. Cut the rocker top (piece 19) to size, then use the **Full-size Pattern** to lay out the rockers (pieces 20). Cut them on your band saw, then smooth the cuts with a belt sander. Locate the dowel holes (see **Pattern**), stack the rockers on your drill press and carefully drill the holes.



Secure the rockers to the rocker top with #6 x 1½" screws (pieces 12) and glue. Predrill countersunk pilot holes through the bottom of the rocker top centered and 1½" in from each end: these will be used later to attach the rocker top to the horse's body with two #6x 1½" screws. (Note: these locations are critical, since there's little room to maneuver when you are attaching the base subassembly to the horse.) Cut the 1" dia. dowel (piece 21) to length and test fit the entire subassembly to the riser, inserting the dowel as you do. Make any adjustments needed for a smooth rocking action, then predrill pilot holes for the eyelets (pieces 22): the springs (pieces 23) should be snug but not extended. Install the springs using needle nose pliers, as shown in **Figure 9**. I used 1/2" diameter extension springs that I picked up at a local hardware store. They measure approximately 3¾" in length, including the rings on their ends.

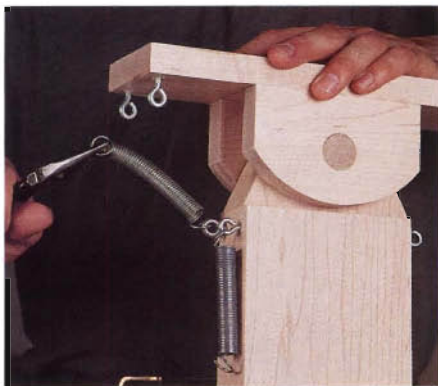
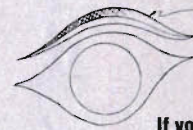


Figure 9: A pair of needle nose pliers works well when hooking the 1/2" extension springs to the eyelets in the rocker assembly.

Final Touches

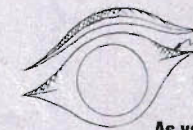
It's time to do the final sanding. Use a palm sander and lightly break all of the exposed edges on the base assembly. Work your way through the grits to 280 sandpaper before applying a finish. Pay close attention to the large amount of end grain on this project when both sanding and finishing. Polyurethane or lacquer are good choices for this project as it will see some rough trails and hard riding before the day is out.

Take the Fear Out of Carving



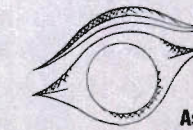
With your knife at a slight angle, use light pressure to begin carving.

If you haven't carved before, it's a good idea to practice on a test piece. Transfer the Full-sized Pattern of the head to your practice piece, then start removing material along the pencil lines at the eye, using a sharp double-beveled knife.



Gently shape the triangle corners of the eye.

As you work, make sure that your knife exits the wood away from your hands, as shown at left. A curved gouge works best to detail the corners of the eyes. Use light pressure, taking your time, and be careful at the end of each line that you don't cut further than you wish to go: knives have a tendency to follow the grain.



Complete the final shape by sanding smooth.

As this is a practice piece, go ahead and cut as deep as you want into the wood: this will help you establish how deep to take the lines on the real workpiece. Use small sheets of sandpaper to smooth over the eyelids and do the final shaping. Don't try to do too much too fast: take your time and you will be pleased with the results.



Avoiding Kickback and Binding

By Rick Christopherson

Someone once asked me: "What's the most dangerous tool in the shop?" I thought about it for a minute, then I told him that it's the one you're most afraid of. The second most dangerous tool is the one that you're sure won't hurt you. If you respect the power of woodworking tools, your caution will be rewarded with safe, precise work. With that in mind, let's take a look at four problem areas encountered during basic table saw operations.

Kickback During Ripping

Kickback simply means that the workpiece is kicked, or driven back toward the operator. When most woodworkers hear the term, they think of a ripping operation coming to a sudden and dramatic stop. There are two interrelated causes for this: an underpowered saw, and incorrect blade height.

Forensic scientists have long known that a bullet causes its greatest damage as its velocity decreases (small entry/large exit). The same is true with kickback, which occurs when a saw blade is slowing down. If the saw has enough power to keep driving, it won't kick back. Not only does the sheer power of the saw come into play here, but the physical weight does too: if the motor, saw arbor and blade are heavy enough, their momentum should keep the blade spinning during a sharp impact.

The second cause of this type of kickback (and many other problems too) is a blade that's set too low. My old high school shop teacher used to tell us to keep the blade as low as possible - just above the top of the wood (see **Figure 1**). But that means that the teeth are cutting more horizontally than vertically.

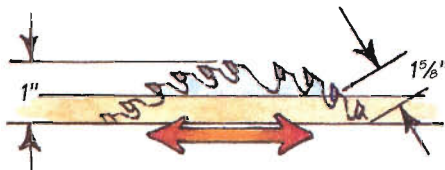


Figure 1: A blade set too low causes the teeth to cut more horizontally than vertically, which increases the chances of kickback.

When the teeth do catch, they're traveling at the top of the blade's rotation. If the blade is set high (as shown in **Figure 2**), the teeth are traveling downward, forcing the workpiece onto the table, instead of back toward the operator. A low blade also causes motor drag: the number of teeth in contact with the wood is greater. Each tooth, instead of cutting through a little more than 3/4" of stock, is cutting through more than twice that distance. With a 3/4" board

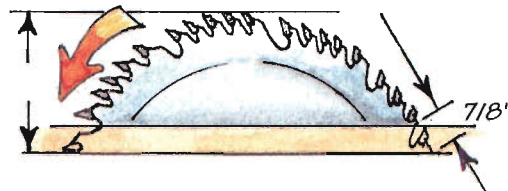
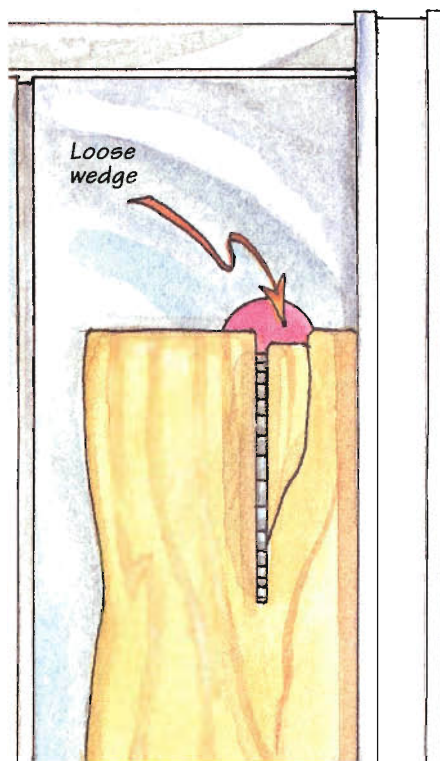


Figure 2: When a blade is set high, the teeth are traveling downward as they enter the workpiece, forcing it safely onto the table.

and 1/4" of blade protrusion on a 10" blade, the teeth must cut through a full 1 5/8" of material. This heats up the teeth and the wood, increases drag on the motor, and reduces the feed rate. Not only does heat cause metal fatigue, but as many species of wood heat up, they expel oils which gum up the blade, further reducing its life. Since the blade is already being slowed, and the motor is operating closer to its stall rate than necessary, kickbacks are far more likely.

Never, never, never...



No matter how rough things get, or how probable a kickback will be, don't ever let go of the wood! I don't care if you're Speedy Gonzales, you're simply not fast enough to get out of the way of a 50 mile per hour projectile. More often than not, by holding fast you will actually prevent the kickback. Over the years I've trained my reflexes not to panic and jump away so that now I hold on tighter than ever and even drive the piece forward if I can, depending on the circumstances.

On long rips, stand at the end of the board to the left and walk it through. This is not only safest, it also gives you the smoothest cut.

Over-the-Top Kickback

The first shop I worked in had a 2'x5' piece of plywood on the wall with the boss's name written on it. This piece had a distinctive semi-circle gouged out of one face. He wouldn't tell me what it was, only that it "had to stay on the wall until you make one just like it". I never made one at his shop, but had he explained how it happened, he could have saved me a fair amount of pain later on.

Over-the-top kickback is the most dangerous type because the wood is thrown at the operator at close to blade speed (about 52 mph!). The workpiece catches the rear teeth of the blade (**Figure 3**), and gets lifted off the table. As the saw teeth travel up and forward, they drive the wood toward the operator. Speed increases and the blade cuts less while digging in more. That decreasing difference in speed between the blade and wood means the teeth no longer cut but dig in like baseball cleats and kick back.

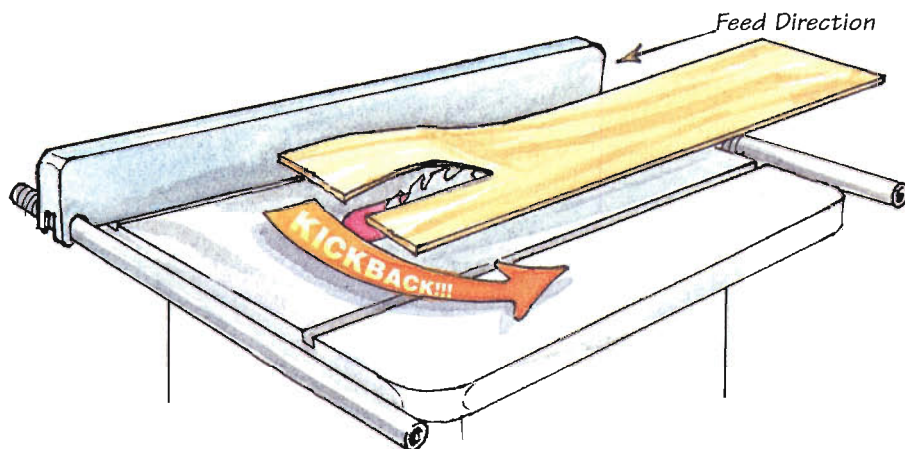


Figure 3: With over-the-top kickback, the wood is lifted off the table and dropped back on top of the blade, which then throws it toward the operator at about 50 mph.

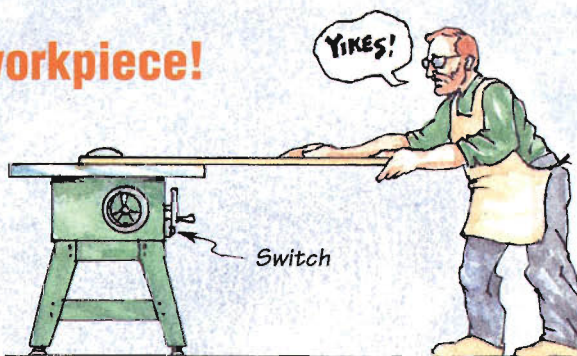
Ripping Lumber and Sheet Products

I've seen woodworkers ripping a long board by standing close to the saw and pulling the workpiece through in short choppy spurts. To them I say the best method for ripping a long board is to stand at the back left side of the board and walk it into the saw. This will result in a smooth, continuous rip. Keeping your left hand fairly far forward during this operation helps push the edge of the board safely toward the fence.

On sheet products, I deliberately hold the sheet very slightly crooked with only the front corner touching the fence (full sheets or long rips). As I slowly ease the sheet forward I can hear the blade make its first contact. Then I immediately straighten the sheet tight to the fence. This ensures that the rip is started with the front of the sheet tight to the fence. As the sheet is straightened, the blade holds the front in place and I exert pressure with my left hand to keep the rest of the workpiece against the fence.

let go of the workpiece!

A couple of months ago I was ripping some oak for face frames and either didn't notice the end check (a split at the end of the board), or didn't think much of it. But this check was unusual: it ran diagonally at about 20°, perhaps 6" into the wood. When the blade hit the end of the check, it cut off a wedge-shaped piece that got carried right back into its own slot. This increased pressure on the side of the blade, so I naturally held tight. Being eight feet behind the saw's **OFF** switch, my only choice was to hold tight until the thermal overload tripped, or someone shut down the saw for me. I had



to ask myself: what's more important? Burning out the saw motor, or having a three pound chunk of oak sticking out of my ear? If I had let go, I could probably have maintained enough control over the large plank, but the small wedge would surely have been free to fly. So keep in mind that, although some circumstances leave the operator with no choice but to bail out, the majority of problems are best handled by holding fast.

Crosscut Binding

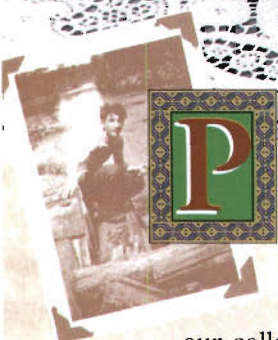
It's fairly common to have to cut a piece of wood that's wider than it is long. Regardless of grain direction, this is a cross-cut. The safety issue here is binding, which occurs when the workpiece twists in relation to the fence. This is one of those operations where things can go wrong very quickly, so if you're not quite comfortable with your saw, you shouldn't attempt it. The safest way to tackle this cut is to use a sliding cutoff jig (**Ed Note:** we featured a great one in issue 26). One final thought: it's a good idea to keep the table well waxed when using any jig.

Rick Christopherson owns and operates Waterfront Woods, a custom cabinet shop in Eagan, Minnesota.

Memory Box

This easy to duplicate gift idea will safely store and display your most treasured photographs.

By Troy Johnson



Photographs are so much more than just images caught on film. As we browse through our collections, details flood forward from the recesses of our memories. A photograph of a young child splashing in a lake, for instance, can remind us of an entire summer vacation at the cabin, while a graduation photo will bring back fond memories of old classmates.

Keeping memories fresh was the motivation behind this project. Too often, our fondest memories are hidden away in shoe boxes, tucked away in the attic. The six frames in the lid of this box are designed to display some of your favorite shots, and to serve as an invitation to friends and loved ones to open the lid and share the treasures inside. Best of all, you can easily replace these photos to reflect changes in the seasons or to highlight special events you want to commemorate.

Get Started With a Template

The lid of this memory box is essentially a picture frame, and as such it will receive some sharp scrutiny. Clean, crisp edges and uniform cuts are the order of the day, and the best way to achieve them is by using a template to rout the holes. A template of 1/4" hardboard, secured to the lid with two-sided tape, can be followed by a laminate trimming router bit. This will not only produce excellent cuts, it will also allow you to go into

Memories may fade, but photographs don't have to. Take care that your prints and negatives aren't in contact with acidic plastic, and store them away from sunlight in conditions that you would find comfortable - not the attic or basement. Most importantly, avoid large humidity or temperature swings.



production. If you're like me, you'll want to make more than one of these memory boxes at a time. They make wonderful gifts and production methods can save a lot of time on setups and help to reduce mistakes.

To make your template, attach a copy of the **Full-size Pattern** (between pages 20 and 21) to some 1/4" hardboard, then scroll saw the openings, as shown in **Figure 1**. Use a drum sander in your drill press (see inset) to clean up the oval and round holes, and to shape the radiused corners of the rectangular holes. Accuracy is important when you create a template, as any imperfections will be transferred to each and every workpiece you create with it: Be sure to refine your template with files and sandpaper, as shown in **Figure 2**.

Put a Lid on it

Honduras mahogany boards usually come wide enough to create the entire lid (piece 1) out of a single piece. Normally, this is not a great idea as wood moves across the grain more than it moves in length. On this piece, however, so much stock is being removed for the viewing holes that it's no longer an issue.

If you do have to glue up stock (and I advise doing so for wide-grained species like oak as they may warp), don't use any biscuits or dowels: they may show up later in a bad spot as you cut out the viewing holes. Trim the blank to size, then use your template to outline the holes in pencil. Use large Forstner bits to clean out as much of the waste as you possibly can, then secure the template to the lid blank with two-sided tape. Install a bearing guided laminate trimming bit in your table mounted router - you'll need one with a 3/4" or longer cutter - and clean up the edges of the viewing holes (see **Figure 3** on page 33).

When all the holes are cleaned up, remove the template and change to a 3/8" cove bit, again equipped with a bearing. Use this bit to form a decorative edge on the top of each hole. Then switch to a double Roman ogee bit to mill the edge of the lid: this is done with the workpiece on edge, as shown below. Make this cut in several passes, cutting across the grain first, then with the grain, to avoid tearout.

Creating a recess in the bottom of the lid for the Plexiglas® insert (piece 2) and the picture backer (piece 3) is a relatively simple matter. This is a plunge cut made with a straight bit in the table router. The cut is restricted by stops clamped to the tabletop. It's a good idea to use a scrap the same

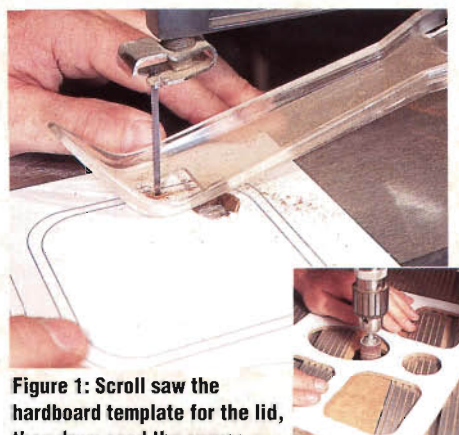


Figure 1: Scroll saw the hardboard template for the lid, then drum sand the curves.

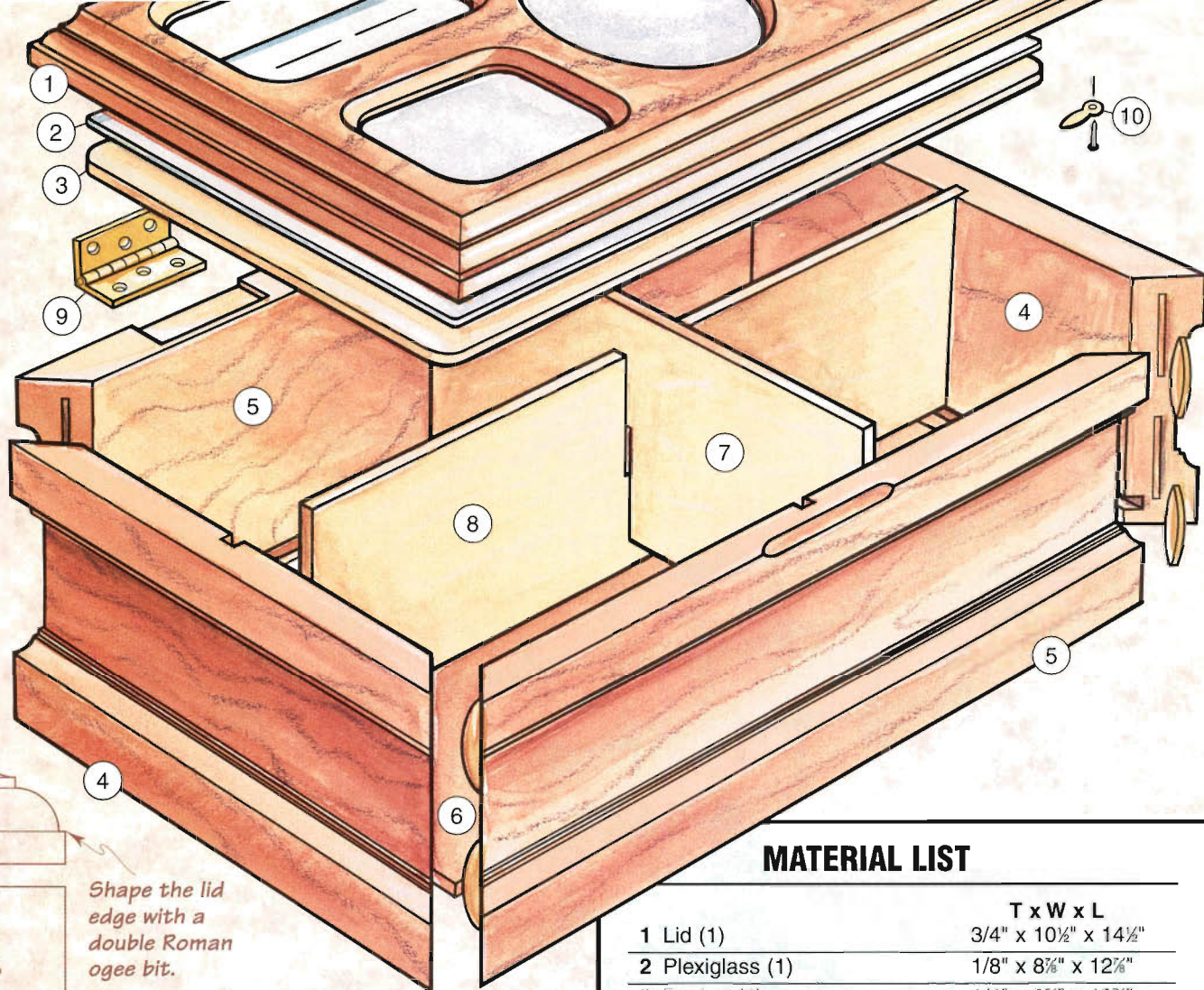


Figure 2: Refine your template with files and sandpaper. Accuracy is very important as any rough spots will be transferred to the project.

size as your lid when setting these stops, just to make sure they're on the money. Make the cut in several passes, raising the bit about 1/8" each time until you've removed 1/2" of stock.

To get the desired profile on the edge of the lid, the piece was fed through a double ogee router bit on its edge.





MATERIAL LIST

	T x W x L
1 Lid (1)	3/4" x 10 1/2" x 14 1/2"
2 Plexiglass (1)	1/8" x 8 7/8" x 12 7/8"
3 Backer (1)	1/4" x 8 7/8" x 12 7/8"
4 Sides (2)	3/4" x 5" x 10 1/2"
5 Front and Back (2)	3/4" x 5" x 14 1/2"
6 Bottom (1)	1/4" x 9 7/8" x 13 3/4"
7 Short Divider (1)	1/4" x 4 1/2" x 9 5/8"
8 Long Divider (1)	1/4" x 4 1/2" x 13 5/8"
9 Hinges (2)	2" Brass 110°
10 Retaining Clips (4)	Brass

Shape the lid edge with a double Roman ogee bit.

Use a core box bit to cut the cove.

The 1/16" step down cuts are made with the straight bit.

The wide groove is cut with a straight bit mounted in your router table

1/4" x 1/4" Bottom Groove

Shape the 1/4" thick backer to fit inside the space in the lid, then use it as a template to cut the Plexiglas to size.

The Side Molding

Both the sides (pieces 4) and the front and back (pieces 5) can be made from a single long piece of stock, then cut to length. The first step here is to plow a wide groove down the center of the stock (shown full-size in the illustration at left). This is a good job for a straight bit in the router table. Run the stock against the fence, making multiple passes until the groove is full depth. If you start in the center, you'll be able to switch the workpiece end for end after each cut and get two passes between fence adjustments.

When you're done, lower the bit and move the fence to create the step that leads into the cove (checking your setup on scrap). Chuck a 1/2" diameter core box bit into the router to cut the coves, as shown in **Figure 4**. The final routing operation on this molding is a groove for the bottom (piece 6), and the easiest way to cut this is by switching to a 1/4" straight bit and running the other side of the molding across the router table one last time. With that done, set your table saw blade to 45° and use your miter gauge to cut the molding into the sides, front and back.



Figure 3: With the template attached to the workpiece with two-sided tape, a laminate trimming bit cleans up the cutouts.

Wrap up by straightening your blade to create the 3/16" deep dadoes for the dividers in the center of each of these pieces, then turn your attention to the miters on the corners. I figured this gift will receive heavy usage over the years, so I used a couple of miniature biscuits on each corner, cutting the slots with my Ryobi detail joiner, an inexpensive tool that makes short work of box joinery.



Figure 4: Create the coves in the memory box sides, front and back with a core box bit chucked in your table mounted router.

An acceptable alternative here, although not quite as elegant as the biscuits, would be pinning the joint and filling the holes. After completing a dry fit, spread your glue on the corners and slots and assemble the sides, front and back, trapping the bottom as you do. Once the glue dries, set a stop on your router table and use your cove bit to create a 2 1/2" finger reveal on the center of the front to make opening the lid easier.

Details

The dividers (pieces 7 and 8) are simply half lapped to create storage inside the memory box. Cut the slots into the center of each divider with your band saw.

Test fit the dividers to ensure they fit well, then glue and clamp them into the dadoes you created earlier. While the glue cures, you can mount the hardware on your memory box. Mortise the 110° hinges (pieces 9) into the lid and back, outlining each mortise with a sharp utility knife and removing the waste with a sharp chisel. **Note:** The screws that come with these hinges are too long for the lid. You'll need to clip them to fit, or replace them with shorter ones.

A retaining clip (piece 10) is mounted at each corner of the recess in the underside of the lid. These clips are set in 1/8" deep pockets so the lid will close properly, and this, once again, is a job for a knife and chisel. When you're done and everything fits, remove all of the hardware in preparation for finishing.

Flocking

Flocking is a great way to treat the inside of a collector's box like this. The finish is textured and looks wonderful. Mask the exterior of the box and use a colored adhesive that will matches the color of your texture.

Apply a heavy coat of texture with a flocking applicator (see **Figure 5**). Allow the application to



Figure 5: Flocking the inside of the box is easy. Simply mask off your wood, apply colored glue to the workpiece, then spray on the flocking.

dry for 24 hours, then remove any loose or excess flocking by tipping the box over and gently tapping it.

Apply the finish of your choice (I used a mahogany stain and a clear lacquer) and reinstall the hardware after it dries. Then pick out your best six photos for the lid and store the rest safely away in the four compartments inside your memory box.

Troy Johnson is the owner of Troy's Custom Cabinet Shop in Fridley, Minnesota.



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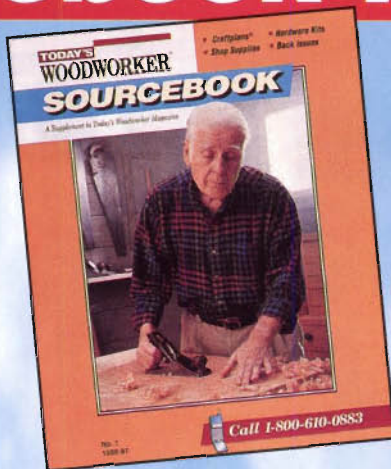
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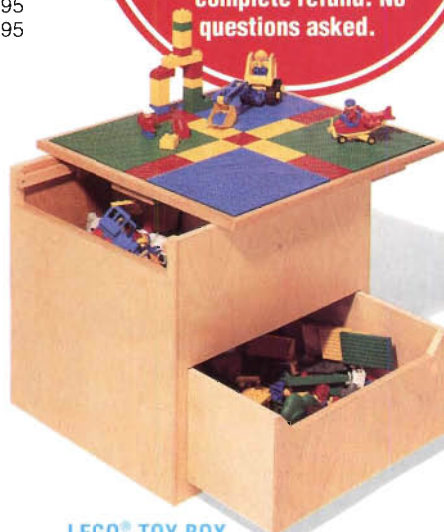


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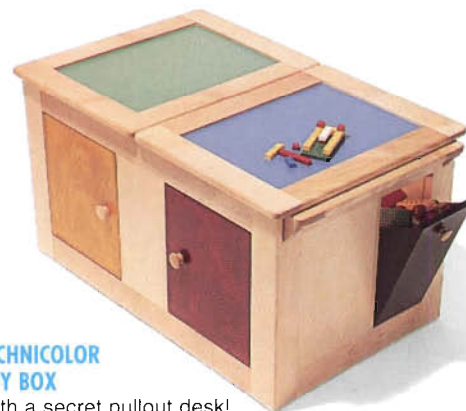


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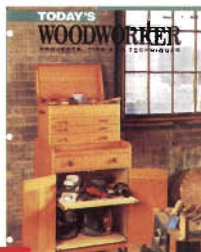
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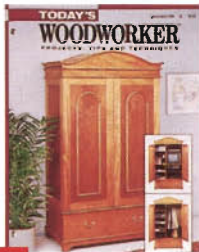
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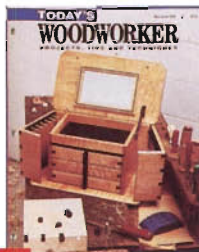
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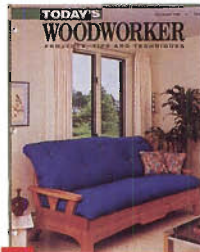
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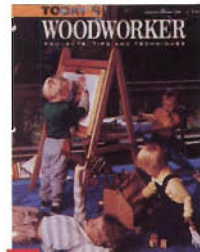
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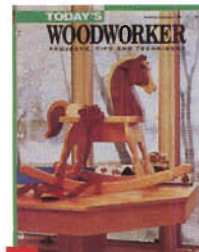
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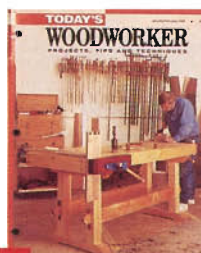
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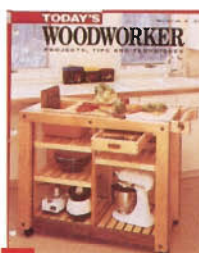
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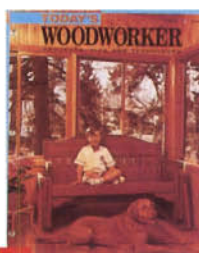
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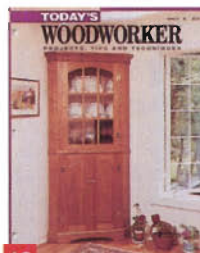
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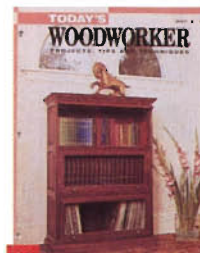
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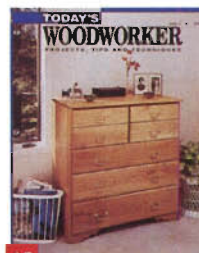
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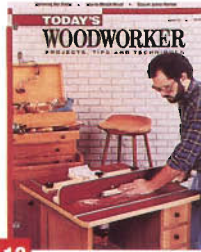
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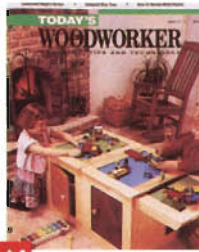
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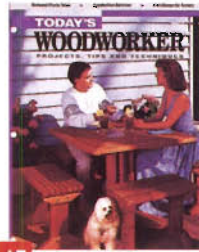
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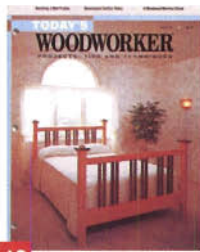
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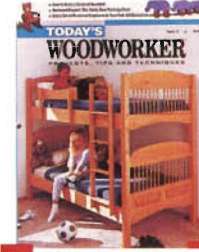
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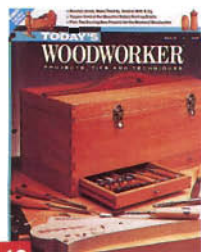
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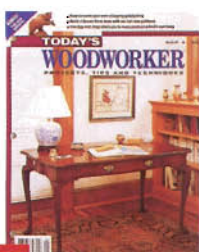
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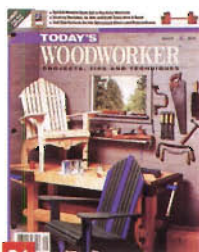
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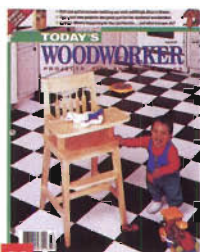
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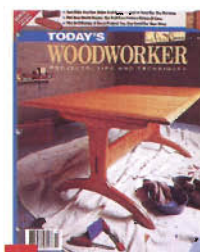
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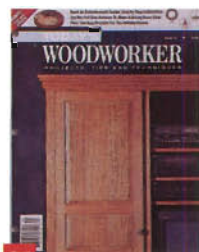
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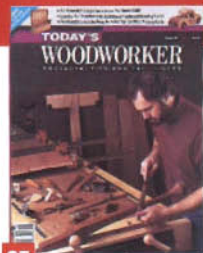
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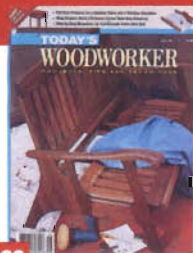
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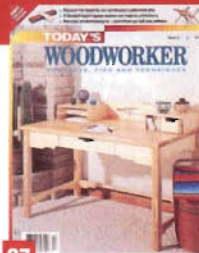
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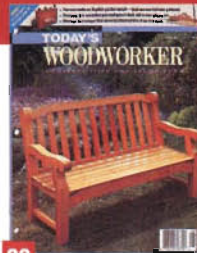
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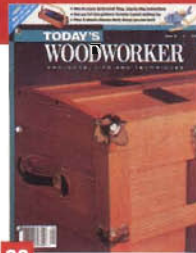
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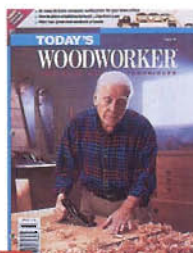
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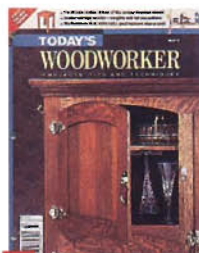
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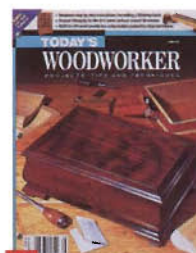
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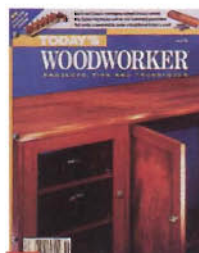
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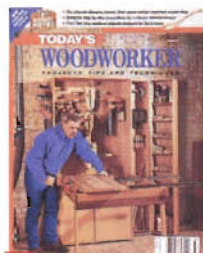
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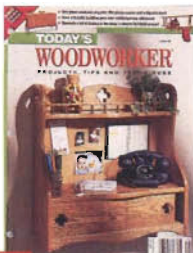
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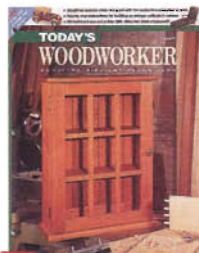
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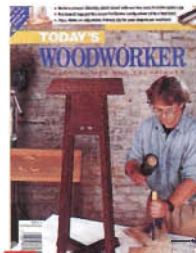
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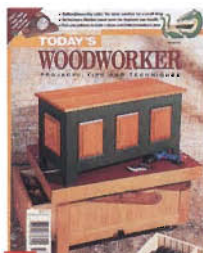
- 40** A filing cabinet, the looney whirligig, an arts and crafts end table and Scout's rocking pony.
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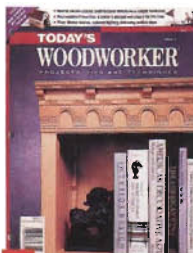
- 41** A Stickley fern table, an adjustable V-block jig, a Shaker bench and a Shaker vanity mirror.
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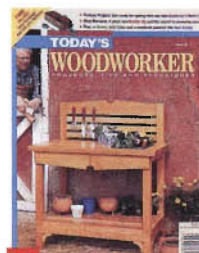
- 42** A versatile hobby box, the salmon cutting board, card playing coasters and a race car.
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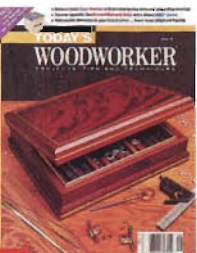
- 43** A blanket chest, a mantel clock, Corky crocodile's desk, outfeed/assembly table.
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- 44** A bookcase, a toy barn, the golfer's whirligig, a Greene & Greene hall mirror.
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- 45** The gardener's bench, a dart caddy, Shaker hall table and a router surfacing jig.
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- 46** A classic mahogany humidior, the LEGO® center and an oriental redwood arbor.
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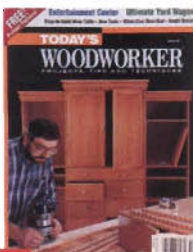
- 47** A scroll saw blade caddy, the 4x4 jeep, an heirloom jewelry box, and the steamer trunk II.
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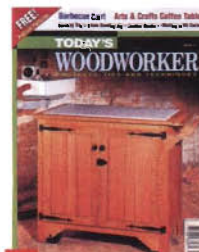
- 48** A kaleidoscope, a road grader, a chessboard, and the Chippendale table.
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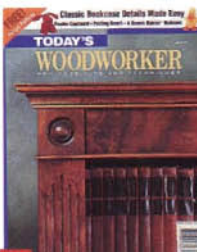
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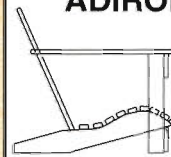


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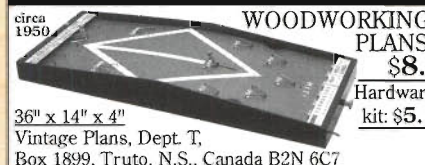
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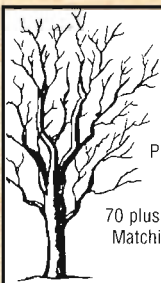
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3	12	21	30	39	48	57	66	75	84	93
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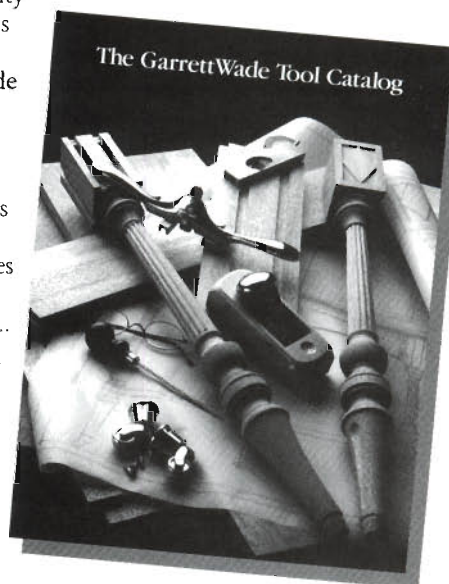
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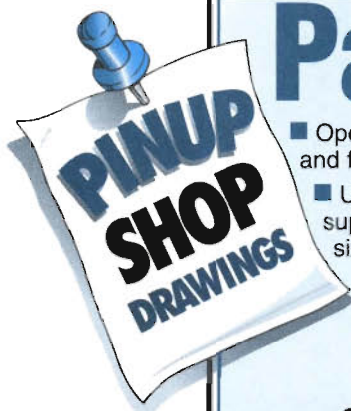
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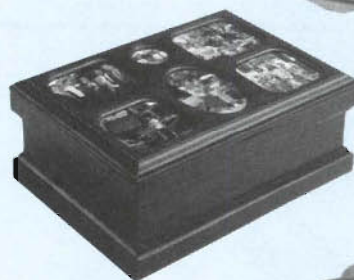


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Memory Box

Full-size Pattern for the lid template.

Rockin' Bronco

Ideal for the 2-4 year old set. Included are Full-size Patterns for all of the shaped parts.



Don't round over this edge



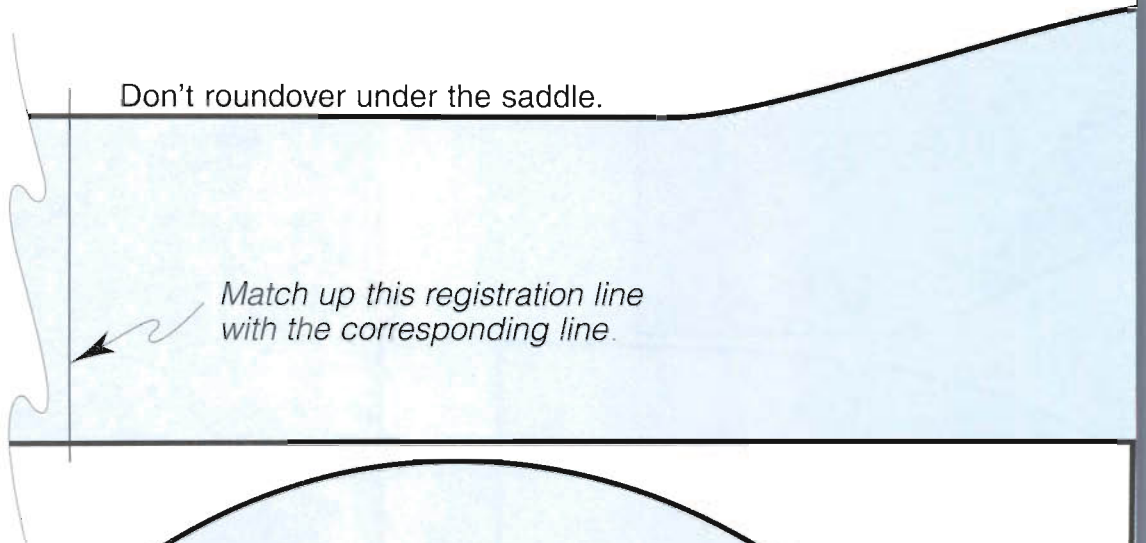
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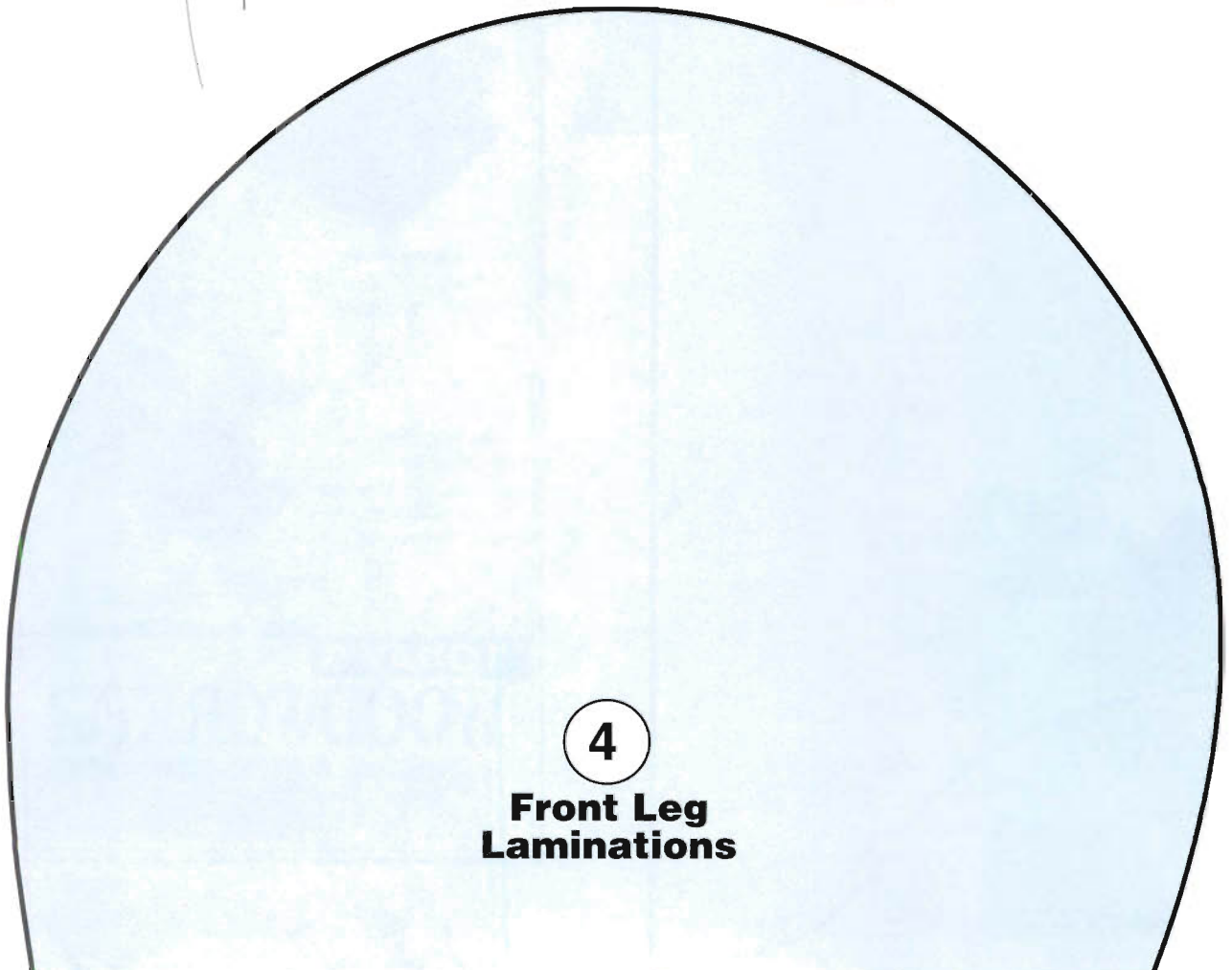
Don't roundover this edge.



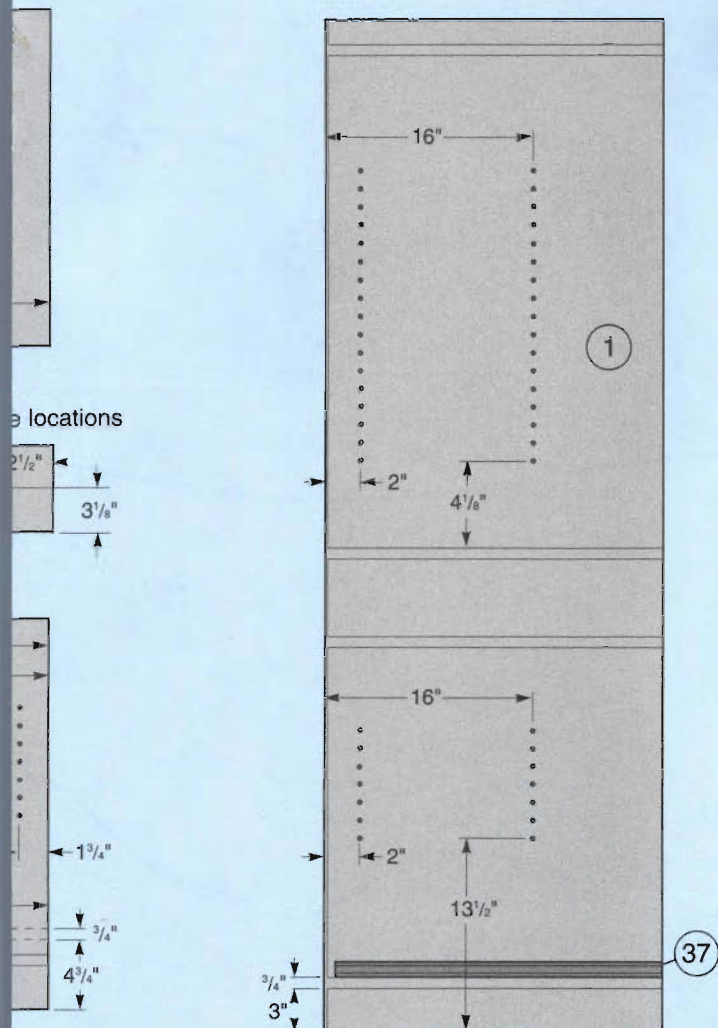
Don't roundover under the saddle.



4
**Front Leg
Laminations**

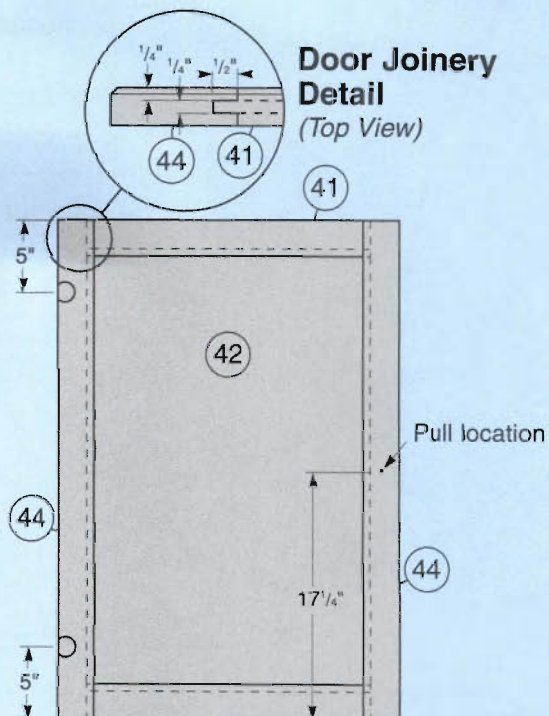


Right Side
(Side View)

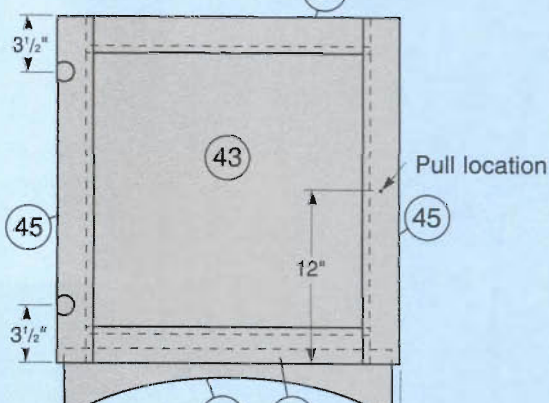


Note: The drawer slide (piece 37) sits on the deep bottom shelf.

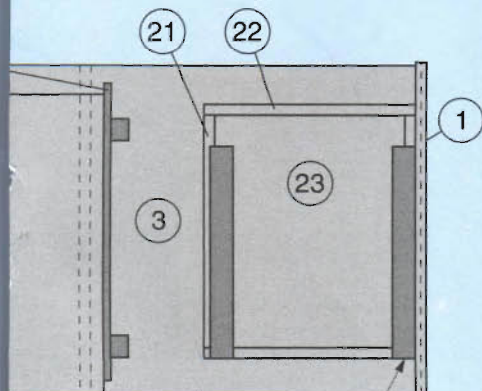
Door Joinery Detail
(Top View)



Upper Door
(Back View)

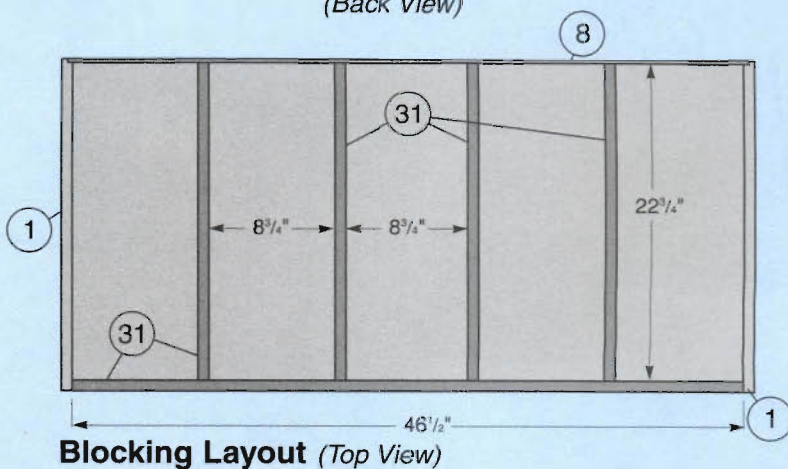


Lower Door
(Back View)



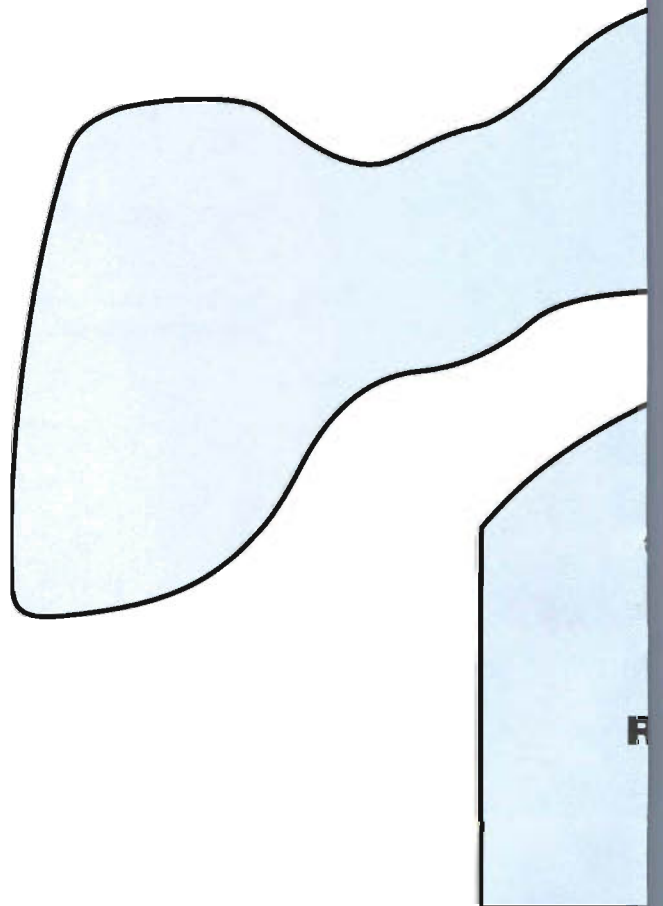
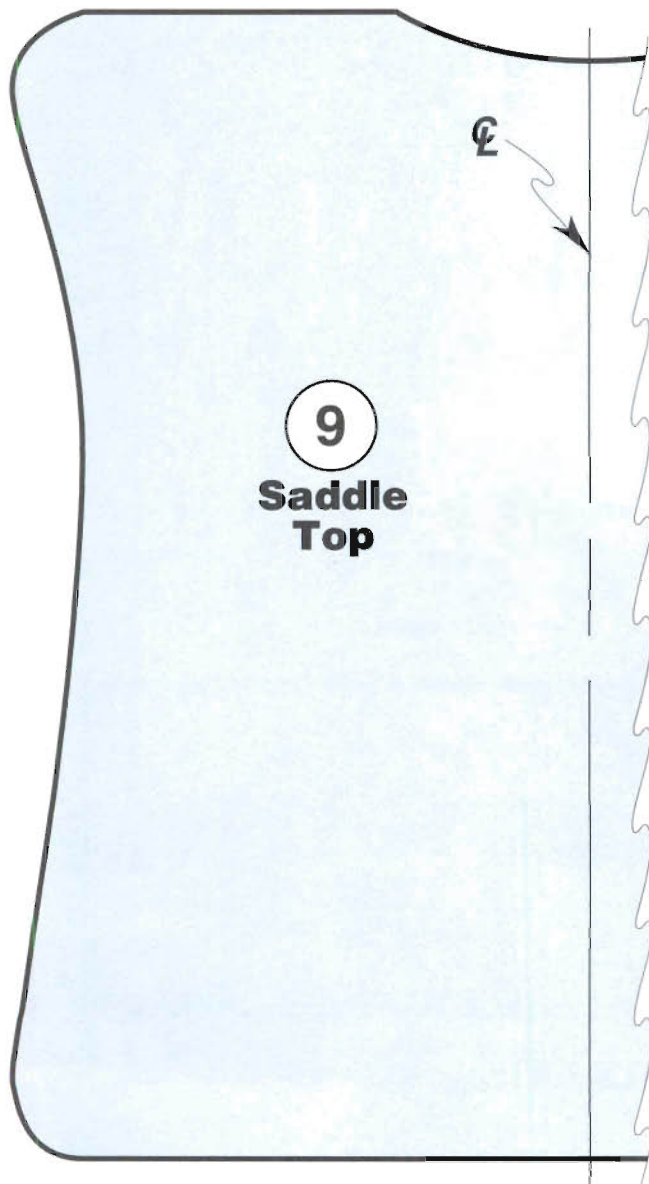
Assembly

Locate the TV swivel flush to the side of the cabinet.



Blocking Layout (Top View)

*Trim the inner leg
laminations to match
the contour of the torso.*

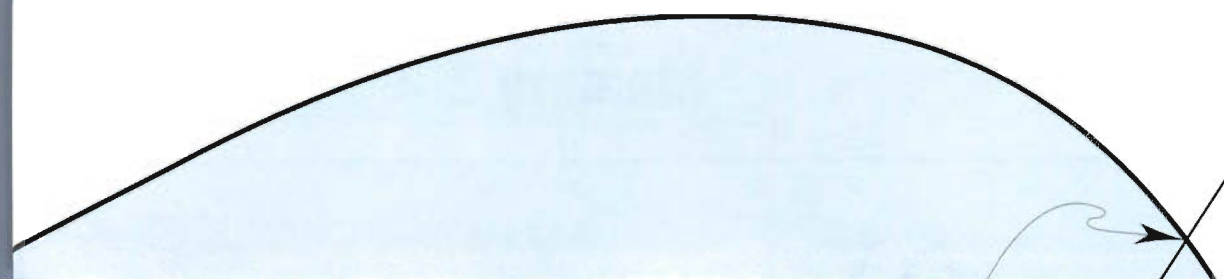
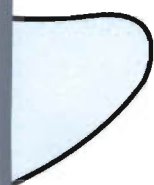


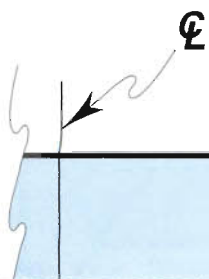
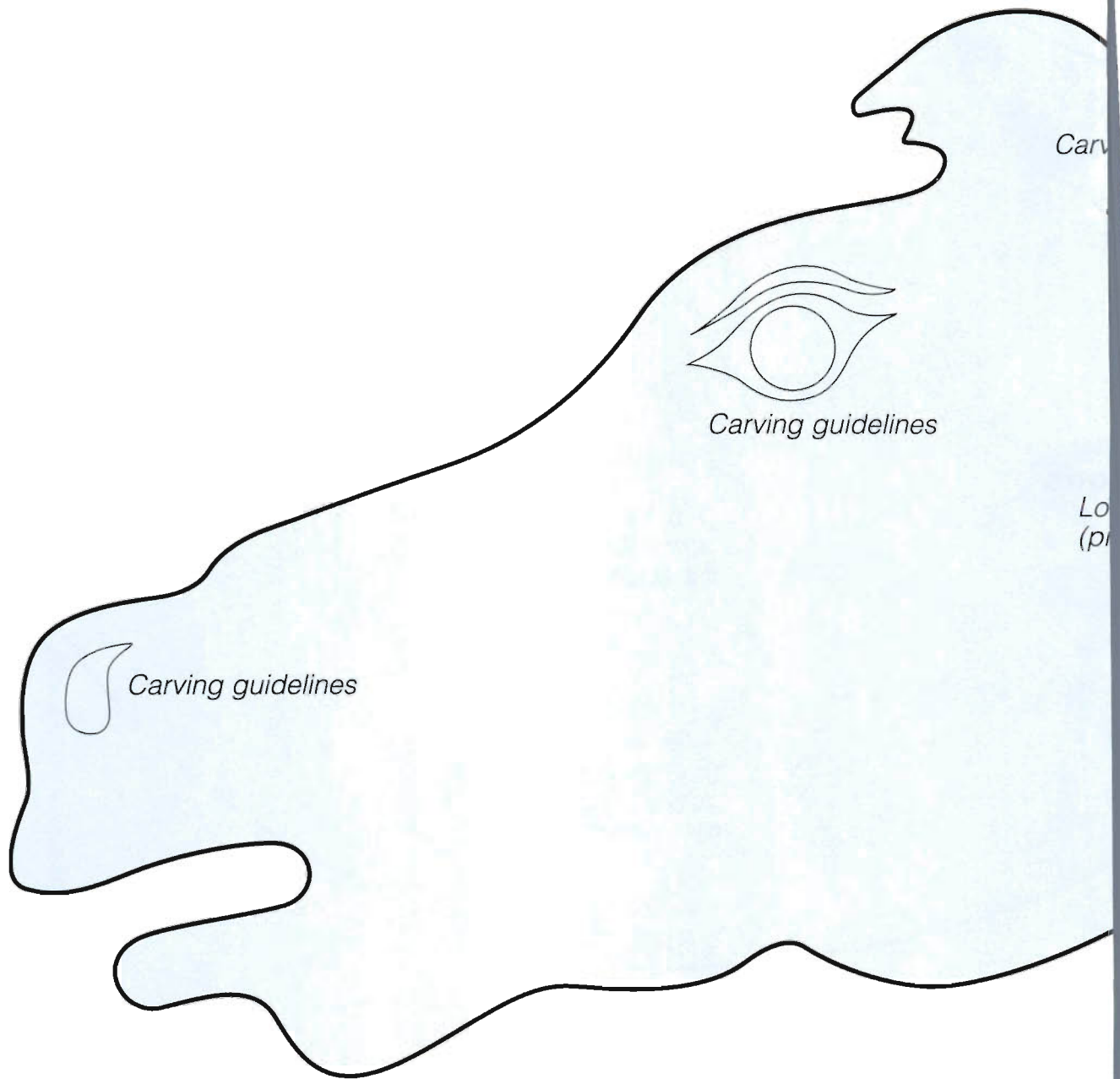
eg
ons

Use these registration
marks to position the
rear legs.

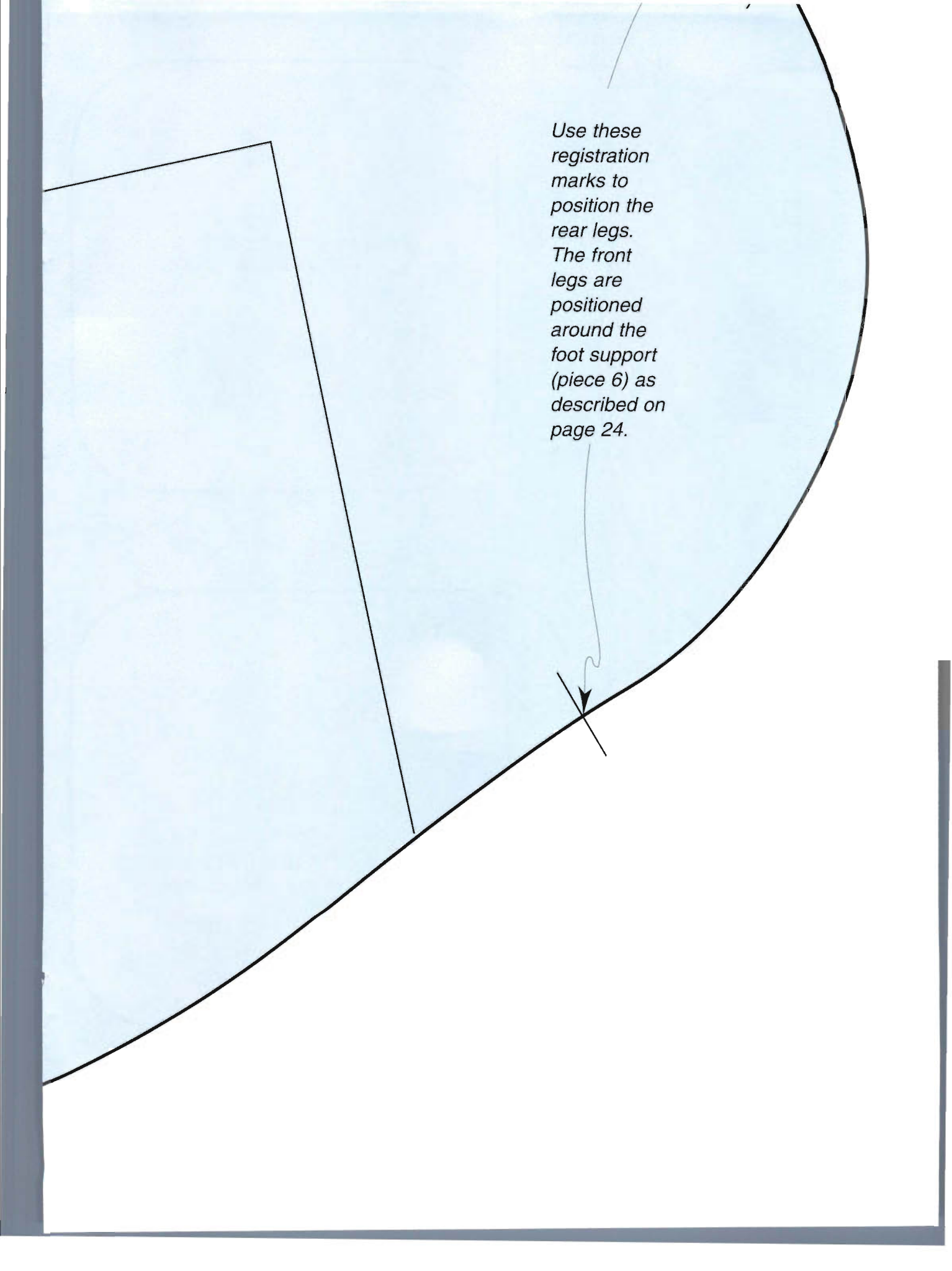
Trim the inner leg
laminations to match
the contour of the torso.

Use these registration
marks to position the
rear legs.





Memory Box

A light blue curved surface, possibly a piece of fabric or a mold, is shown. A black line runs along the bottom edge of the curve. A registration mark, consisting of a small circle with a crosshair, is located on this line. A thin black line points from the text block down to this registration mark.

Use these
registration
marks to
position the
rear legs.
The front
legs are
positioned
around the
foot support
(piece 6) as
described on
page 24.

Lid Template
(for piece 1)

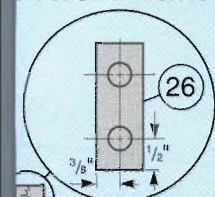
*Photocopy this half of the
pattern twice to make
your complete template.*

*A 3/8 cove bit is used on each
opening of the workpiece, but
not the template.*

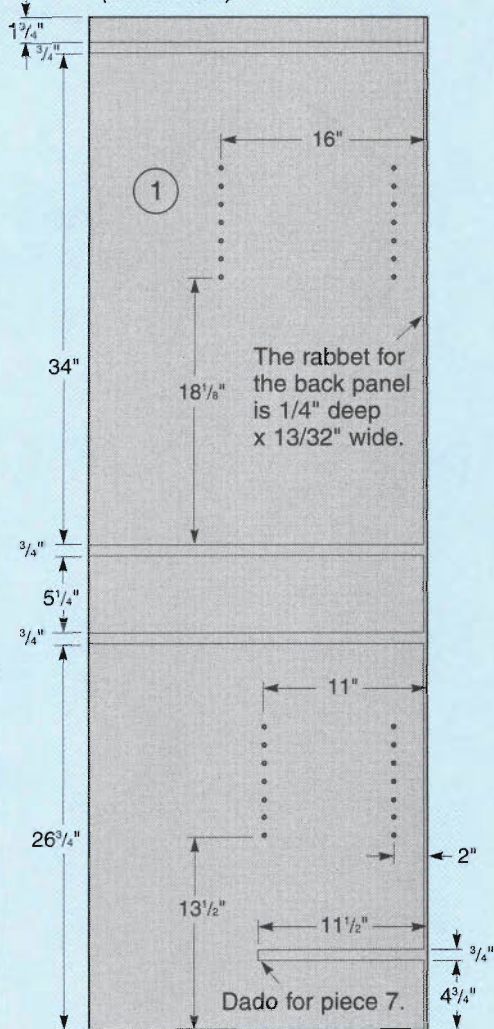
*Use these
openings
transfer the
hinge loc*

Dowel locations

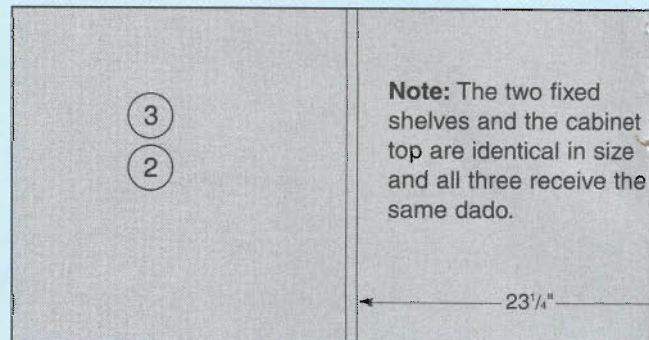
Note: All dados are 3/4" x 3/8" deep and all 5mm pin holes are 1 1/4" apart.



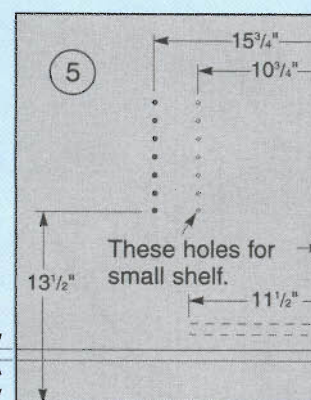
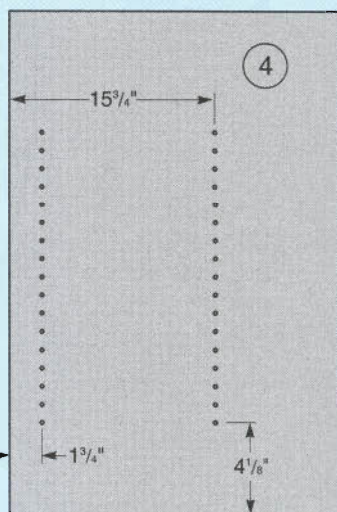
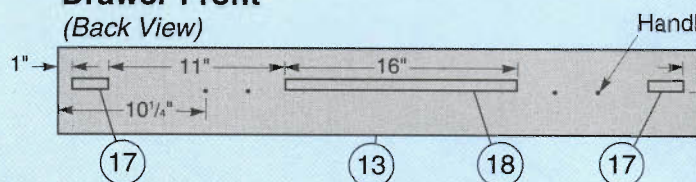
Left Side
(Side View)



Upper Fixed Shelf and Top
(Bottom View)

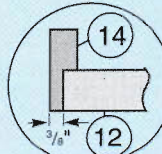


Drawer Front
(Back View)

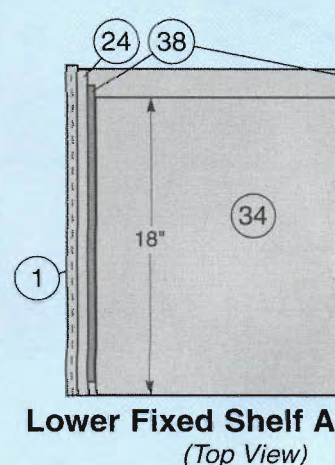
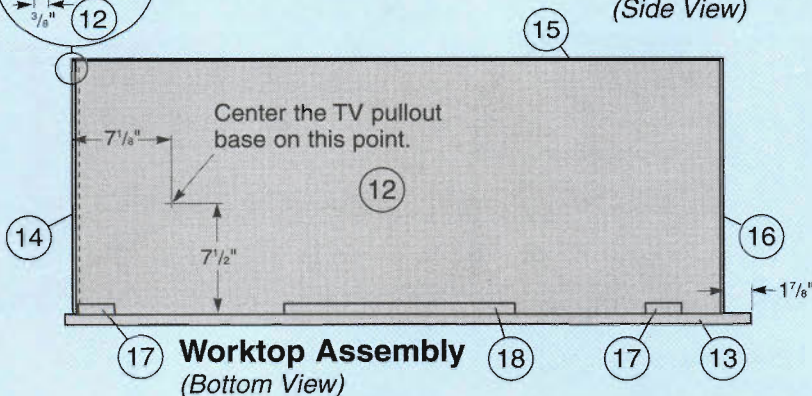


Lower Divider
(Side View)

Trim Detail
(End View)



Upper Divider
(Side View)



Lower Fixed Shelf Assembly
(Top View)

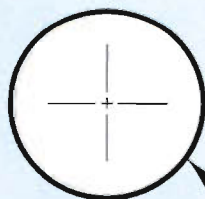
x L	
x 9"	
" offset	
" x 105"	
1/4" x 48"	
" x 144"	
1/4" x 108"	
1/8" x 51 3/16"	
" x 23 1/4"	
1/2" x 21 3/4"	
1/4" x 168"	
travel	
" x 22 13/16"	
1/2" x 22 13/16"	
" x 19 5/8"	
3/4" x 30 3/8"	
3/4" x 22 3/4"	
" x 34 1/2"	
" x 24"	
x 22 3/4"	
kel	
stern	
stern	

2

**Inner
Body Panel**

20

Rockers



1" dowel
location

Use this line to position
door toekick on the rail

46 **Arched
Toekick**

The toekick under
printer is trimmed

Computer Cabinet

29
**Crown
Molding**

11
**Saddle
Strap**

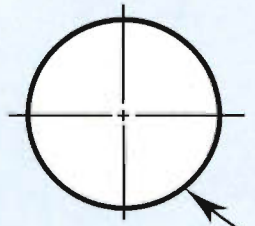
Don't roundover
under the saddle.

Match up this registration line
with the corresponding line
on the rear half.

Rockin' Bronco

1

Main Body
(Rear half)



17

Riser

Note: Inner body panels are cut along this line to create the body cavity.

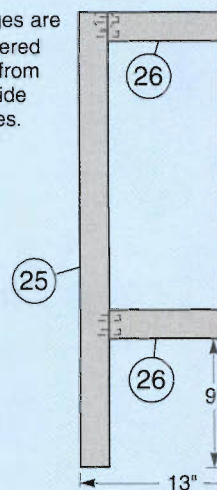


3

**Outer
Body Panel**

Leg Assembly (Side View)

Hinges are centered 1 1/4" from outside edges.



MATERIAL LIST

	T x W x L		T x W x L
1 Sides (2)	3/4" x 23 1/2" x 70"	26 Worktop Leg Stretchers (2)	3/4" x 23 1/2" x 70"
2 Top (1)	3/4" x 23 1/4" x 47 1/4"	27 Worktop Leg Dowels (8)	3/8" x 23 1/4" x 47 1/4"
3 Fixed Shelves (2)	3/4" x 23 1/4" x 47 1/4"	28 Aximat Hinges (5 pairs)	270°; 3/4" x 23 1/4" x 47 1/4"
4 Upper Divider (1)	3/4" x 23 1/4" x 34 3/4"	29 Crown Molding (1)	3/4" x 23 1/4" x 47 1/4"
5 Lower Divider (1)	3/4" x 23 1/4" x 27 1/8"	30 Crown Molding Cleat (1)	3/4" x 23 1/4" x 47 1/4"
6 Deep Bottom Panel (1)	3/4" x 23 1/4" x 23 5/8"	31 Blocking (5)	3/4" x 23 1/4" x 47 1/4"
7 Shallow Bottom Panel (1)	3/4" x 11 1/2" x 23 5/8"	32 Crown Shelf Edging (1)	3/8" x 23 1/4" x 47 1/4"
8 Back (1)	1/4" x 47 1/8" x 67"	33 Crown Shelf (1)	1/2" x 23 1/4" x 47 1/4"
9 Wood Screws (100)	#8 x 1 5/8"	34 Keyboard Shelf (1)	3/4" x 23 1/4" x 47 1/4"
10 Hardwood plugs (50)	3/8" dia.	35 Printer Shelf (1)	3/4" x 23 1/4" x 47 1/4"
11 Edging (4)	1/4" x 3/4" x 96	36 Shelf Edging (1)	1/4" x 23 1/4" x 47 1/4"
12 Worktop (1)	3/4" x 17 5/8" x 44 5/8"	37 Drawer slide	22" over
13 Drawer Front (1)	3/4" x 6" x 47 5/8"	38 Keyboard slide	Accuride
14 Worktop Side Trim (1)	1/2" x 1 1/2" x 17 5/8"	39 Large Adjustable Shelves (4)	3/4" x 23 1/4" x 47 1/4"
15 1/8" Worktop Edging (1)	1/8" x 3/4" x 44 5/8"	40 Small Adjustable Shelf (1)	3/4" x 23 1/4" x 47 1/4"
16 1/4" Worktop Edging (1)	1/4" x 3/4" x 18"	41 Door Rails (8)	3/4" x 23 1/4" x 47 1/4"
17 Short Cleats (2)	3/4" x 3/4" x 2 1/2"	42 Upper Door Panels (2)	1/4" x 23 1/4" x 47 1/4"
18 Long Cleat (1)	3/4" x 3/4" x 16"	43 Lower Door Panels (2)	1/4" x 23 1/4" x 47 1/4"
19 TV Swivel Pullout (1)	360° x 130 lbs.	44 Upper Door Stiles (4)	3/4" x 23 1/4" x 47 1/4"
20 TV Swivel Screws (12)	#10 x 5/8 pan head	45 Lower Door Stiles (4)	3/4" x 23 1/4" x 47 1/4"
21 Pivot Deck Sides (2)	3/4" x 1 1/2" x 16 3/8"	46 Arched Toekicks (2)	3/4" x 23 1/4" x 47 1/4"
22 Pivot Deck Front & Back (2)	3/4" x 1 1/2" x 14 3/8"	47 Shelf Supports (20)	5mm. r
23 Pivot Decks (2)	3/4" x 13 3/8" x 16 3/8"	48 Handles (2)	Southw
24 Worktop Stabilizer (1)	3/4" x 4" x 23"	49 Pulls (4)	Southw
25 Worktop Legs (2)	3/4" x 2" x 31 3/8"	50 Glides (4)	nylon

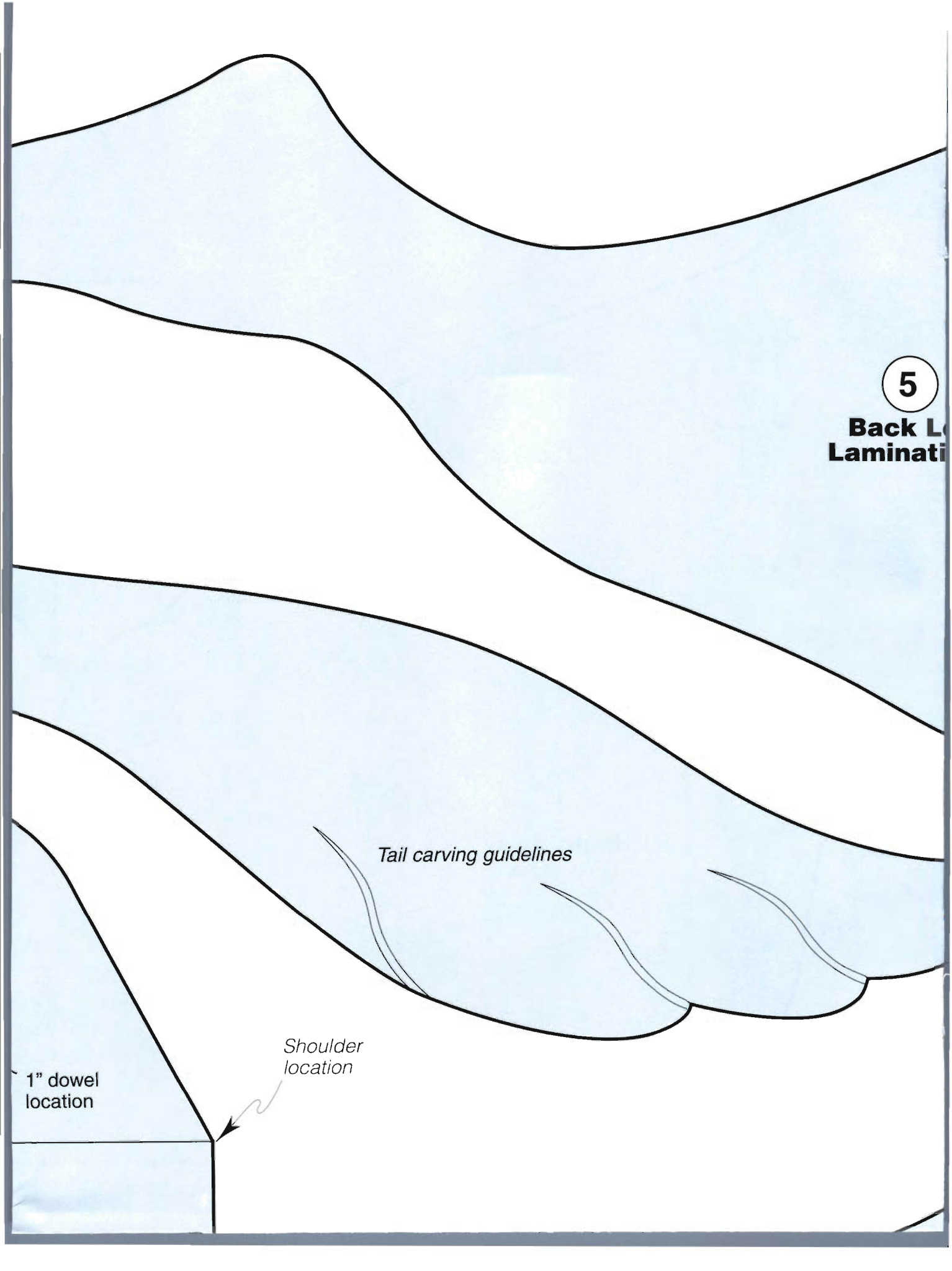
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**Back L
Laminati**

Tail carving guidelines

*Shoulder
location*

*1" dowel
location*



ing guidelines

ocation of Handle
(see 13)

Carving
guidelines

1
Main Body
(Front half)

Co