

NEW!
Pinup Shop
Drawings and
Patterns



- Build our classic mahogany entertainment center
- Big timber log hauler and an old-fashioned pencil box
- Set aside a weekend to make a traditional baker's shelf

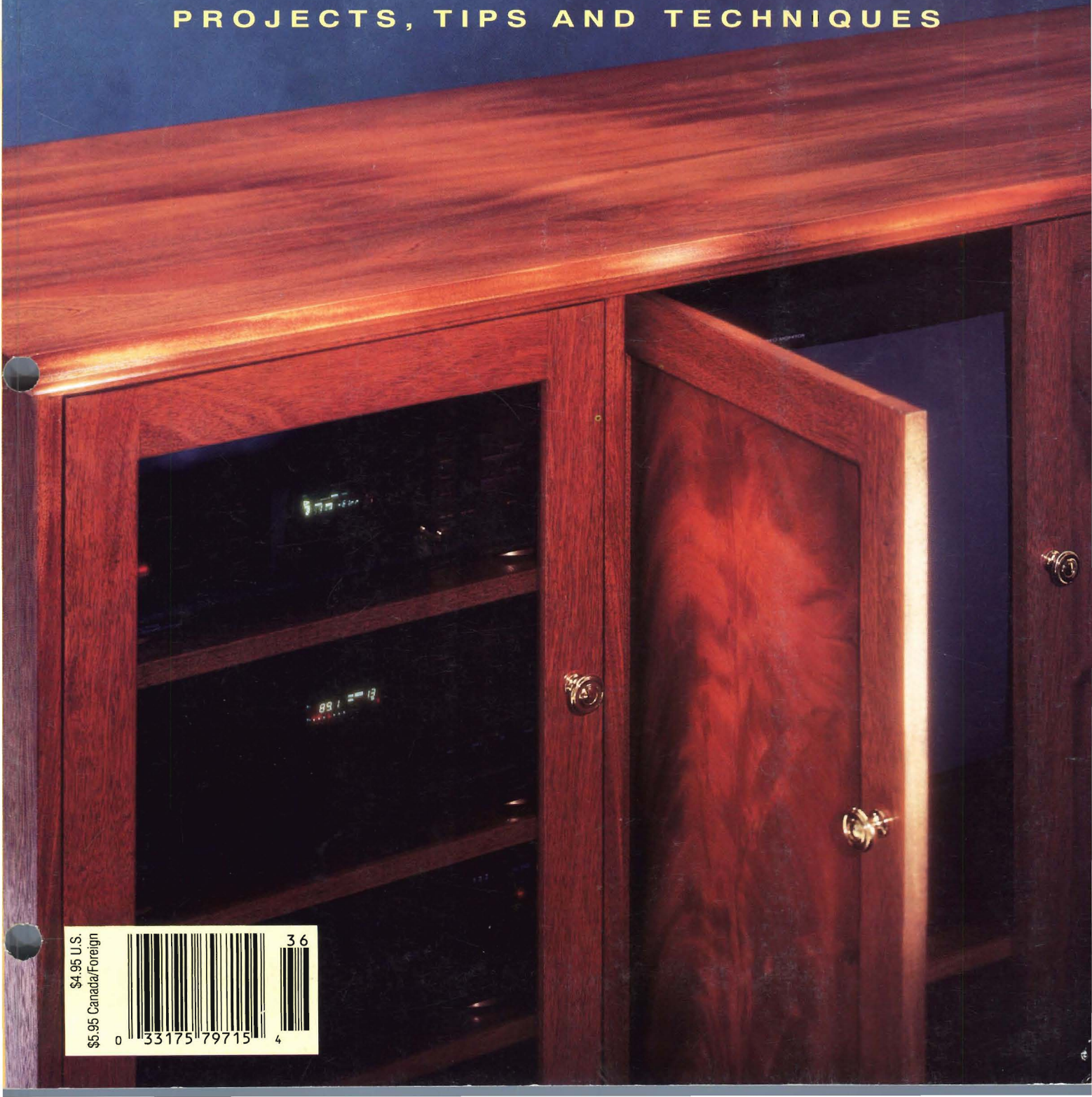


TODAY'S

Issue 36

WOODWORKER[®]

PROJECTS, TIPS AND TECHNIQUES



\$4.95 U.S.
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36

TODAY'S

WOODWORKER[®]

PROJECTS, TIPS AND TECHNIQUES



8 Artist's Pencil Box

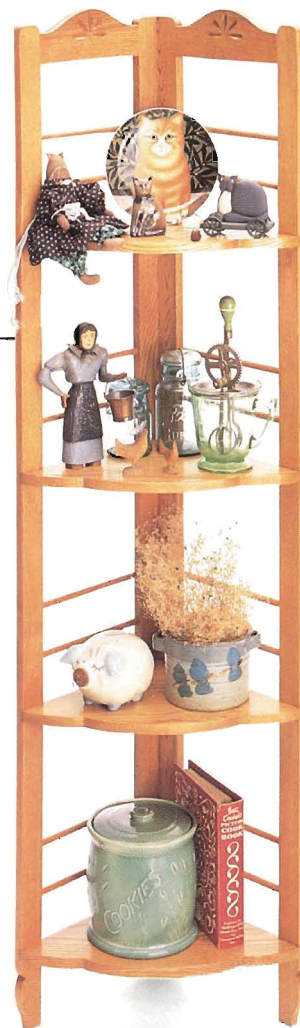
By David Larson

Take a trip back to simpler times, before the computer age, when pencils made a lasting impression.

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By Chris Inman

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Just in time for the holidays, another over-the-rug eighteen wheeler.



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By Rick White

Still hunting for the perfect entertainment center design? You'll find a classy blend of beautiful wood and high tech efficiency in Rick's latest effort.



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Our newest innovation will make project building even easier.

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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 manufacturer's instructions and safety precautions.

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ON THE LEVEL

Check Out Our New Pinup

Since January 1992 we've included a full size pattern insert in each issue of Today's Woodworker —a feature requested by many readers and now an integral part of your magazine.

You'd think we'd leave well enough alone, but our art department has come up with another great idea to make these inserts even more useful.

If you've ever been right in the middle of an especially tricky project, without your copy of Today's Woodworker anywhere in sight, you're going to like our new Pinup Shop

Drawings and Patterns. Along with the full size patterns of the shaped pieces in each of our projects, you'll find a much larger and more detailed set of measured drawings that you can tack right to your workshop wall, pinup style. The material list will also appear, so all of your building information will be close at hand.

Let us know how you like this new idea, particularly on our more complicated projects, such as the entertainment center in *Larry N. Storker* this issue.



Dean Vonfeldt's unique approach to the toy box top has been a real hit with his kids.

When I set out to build the toy box you featured in issue 14 (March/April 1991), I decided to add a creative touch. In place of the laminate top, I used Lego® and Duplo® squares. This required some alterations to the stiles and rails, but otherwise was a breeze. It has been a real hit with our children and their friends.

Dean Vonfeldt

Chestnut Mountain, Georgia

TW Responds: And our kids all agree: "Now that's a great idea!"

You may remember my contacting you this past winter asking for help with the crib project featured in issue 30 (November/December 1993). As you can see from the photo (right), I finally finished the crib and it turned out beautifully. We took it to Michigan and presented it to our new granddaughter, Heather Marie. As you might expect, the high chair featured in issue 22 will be next. I enjoy your publication very much. Keep the excellent projects coming.

Roger Promer

Boone, North Carolina

TW Responds: From the looks of Heather Marie you finished right on time!

In issue 27, A.C. Hohnke's *Trick of the Trade* tells how to make free tack cloths using boiled linseed oil. I hope he keeps them outside or they may become expensive. With his vegetable oil he WILL get spontaneous ignition. Tack cloths should be made with mineral oil, which will not spontaneously ignite.

Carl B. Christopher
Rogers, Minnesota

TW Responds: We talked with finishing expert Bob Flexner and he pointed out that oxygen is the real culprit when it comes to spontaneous combustion. A.C. Hohnke does recommend keeping his tack cloths in zip lock bags, which effectively eliminates oxygen from the picture.

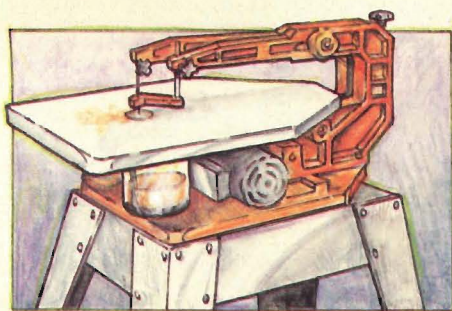
There is a small error in issue 29 (September/October 1993) in the *Steamer Trunk* project. When you complete the front and side panel assemblies they come out exactly 1/4" higher than the corner posts. This little problem can be remedied easily by cutting the mortises in the rails (piece 2, 3, 4, 5, 6 and 7) 1/16" deeper. The extra depth adds up to reduce the overall height of the panel to 14", the same as the corner posts.

Joseph B. Wommack, D.D.S.
Medicine Lodge, Kansas



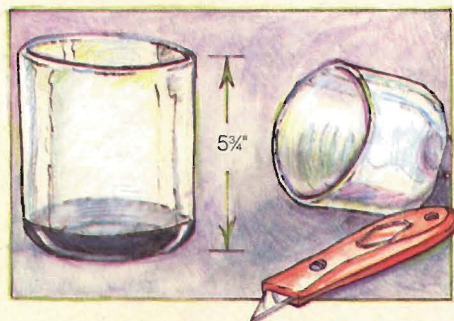
Little Heather Marie (sleeping) gives a thumbs-up to Grandpa Roger's fine craftsmanship.

PICK OF THE TRICKS

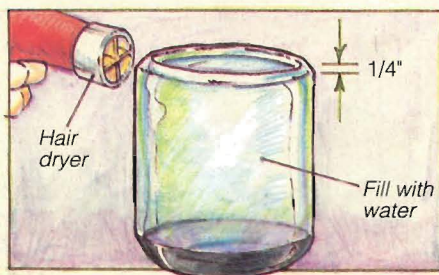


Dust Catchers for Your Scroll saw

I collect the sawdust from my scroll saw in a modified plastic soda bottle. It takes about a week of solid cutting before I have to empty the container, and my clothes and shop are a lot cleaner.



Once you have a bottle, cut it down to about 5 3/4" high with a band saw or a heated utility knife blade. Next, fill the container with water to within 1/4" of the top and use a hair dryer to melt its rim to the water level. The melted rim gives the container a lot more rigidity.

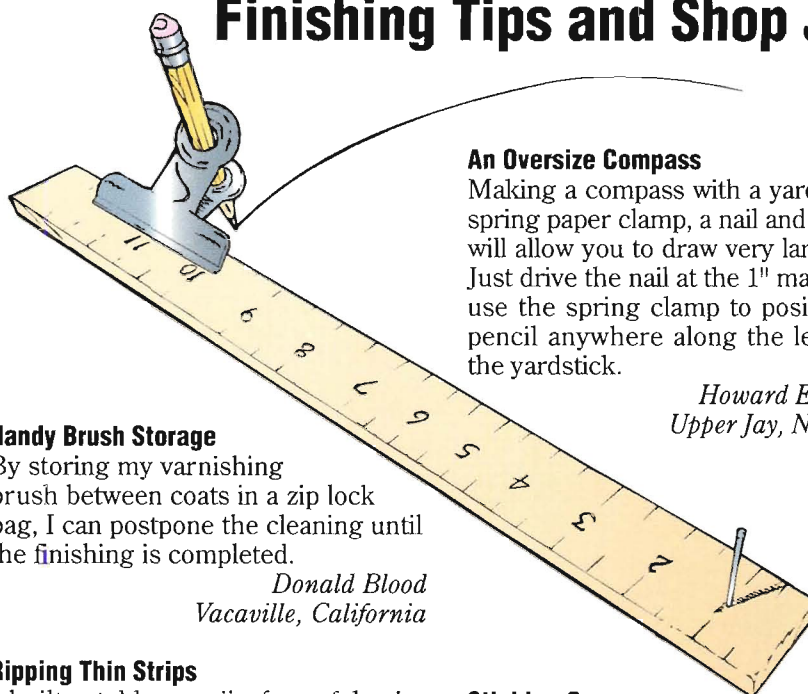


Empty the water out and cut the container to fit around the table locking lever, lower blade chuck and guard on your saw. If you have to, shim the bottom of the container with thin wood wedges until you get a tight fit between the underside of the saw table and the dust catcher.

*Pete Przekop
Wilkes Barre, Pennsylvania*

TRICKS OF THE TRADE

Finishing Tips and Shop Jigs



An Oversize Compass

Making a compass with a yardstick, a spring paper clamp, a nail and a pencil will allow you to draw very large arcs. Just drive the nail at the 1" mark, then use the spring clamp to position the pencil anywhere along the length of the yardstick.

*Howard E. Moody
Upper Jay, New York*

Handy Brush Storage

By storing my varnishing brush between coats in a zip lock bag, I can postpone the cleaning until the finishing is completed.

*Donald Blood
Vacaville, California*

Ripping Thin Strips

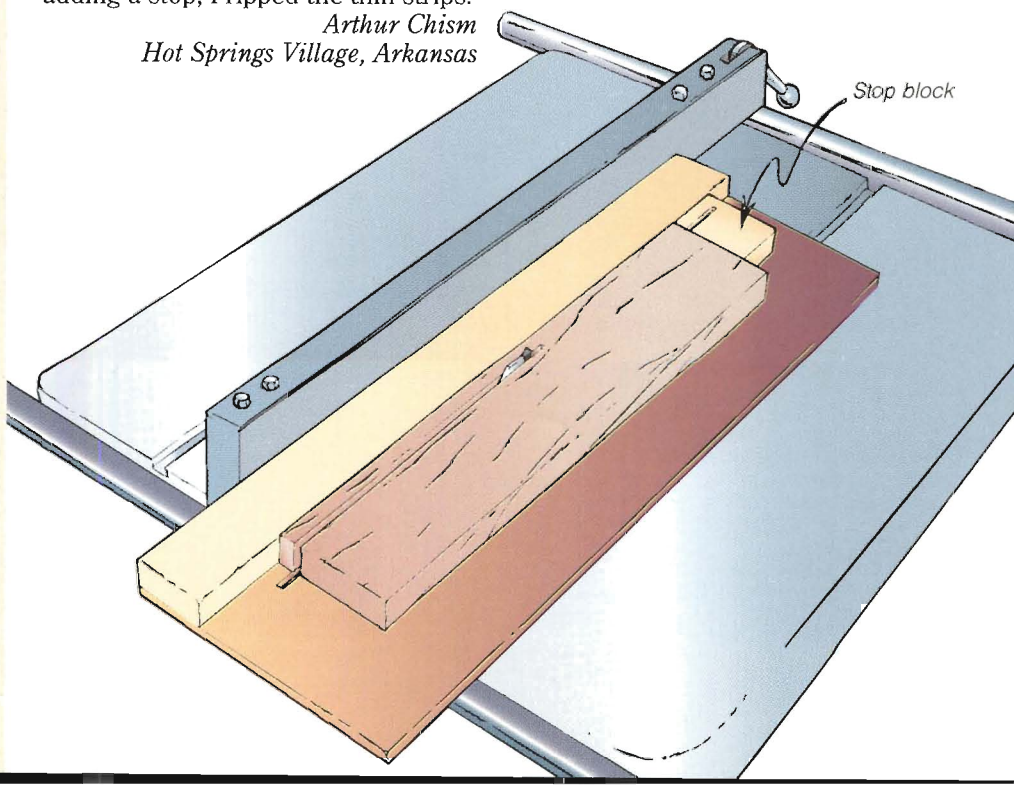
I built a table saw jig for safely ripping thin strips. I screwed a piece of 3/4" x 3" scrapwood to some 1/4" plywood, making each piece 6" longer than the strips I intended to rip. Next, I set the saw fence 3" from the blade plus the thickness of the strips, and lowered the blade under the saw surface. I set the jig against the rip fence, then raised the running blade through the jig and cut a slot, leaving 3" uncut at both ends. After adding a stop, I ripped the thin strips.

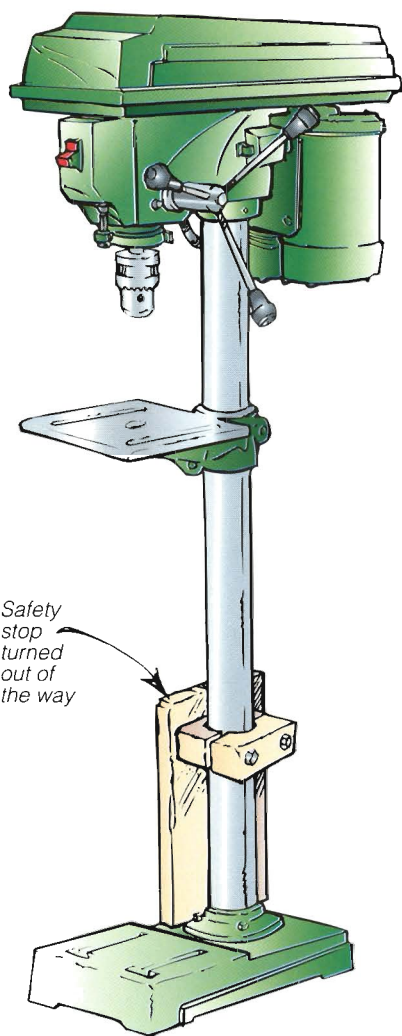
*Arthur Chism
Hot Springs Village, Arkansas*

Sticking Caps

The caps on my cans of oil finish used to become stuck and difficult to open. A remedy finally dawned on me as I worked in the kitchen: Why not lay waxed paper over the threads prior to screwing on the cap? The result was terrific, so now I do it to all my cans and jars of finishing supplies.

*Paul Lee
Minneapolis, Minnesota*





Drill Press Safety Stop

Setting up a drill press table can be awkward, and it's always possible for the table to slip down the column and crash into the base.

To prevent this calamity, I've installed a safety stop below the table. The two halves of the clamp are made from 1½" thick pine, and the inside edges are bandsawn to fit the drill press column. The bolts that hold the halves together can be loosened for repositioning the stop or moving it out of the way.

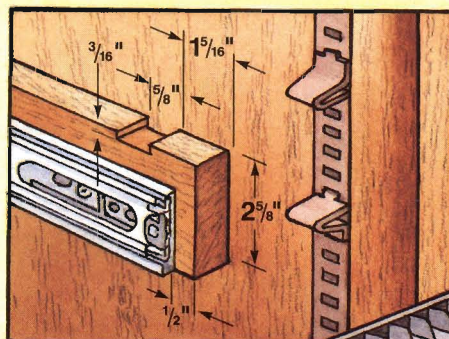
*Larry Bedaw
North Swanze, New Hampshire*

Today's Woodworker pays from \$35.00 (for a short tip) to \$150.00 (for each issue's "Pick of the Tricks") for all Tricks of the Trade published. Send yours to Today's Woodworker, Dept. T/T, Rogers, MN 55374-0044.

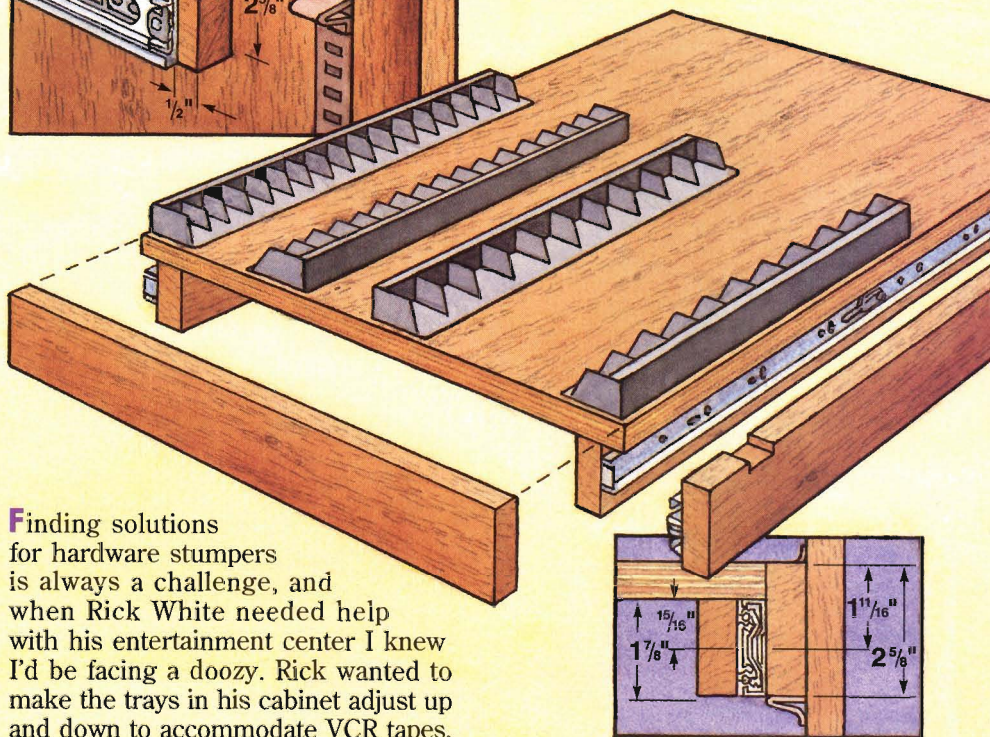
HARDWARE HINTS

How To Make Adjustable Trays

By Al Wolford



The notches in the adjustable tray system are critical. They allow the brackets to fit the spacing of the shelf standards and keep them from sliding forward when the trays are pulled out.



Finding solutions for hardware stumbers is always a challenge, and when Rick White needed help with his entertainment center I knew I'd be facing a doozy. Rick wanted to make the trays in his cabinet adjust up and down to accommodate VCR tapes, audio cassettes and compact discs.

Rather than suggest he buy expensive hardware for this purpose, we put our heads together and came up with a simple solution that only requires standard drawer slides and shelf hardware. By using sets of opposing shelf support clips to hold slide brackets in the cabinet, the sliding trays can be adjusted as easily as any shelf system.

To use Rick's system, build your trays and cut notches in the brackets, as shown above. Screw the slides to the brackets and tray rails, then mount the brackets between the opposing shelf supports in the cabinet. Slipping the trays into position will keep everything in place.

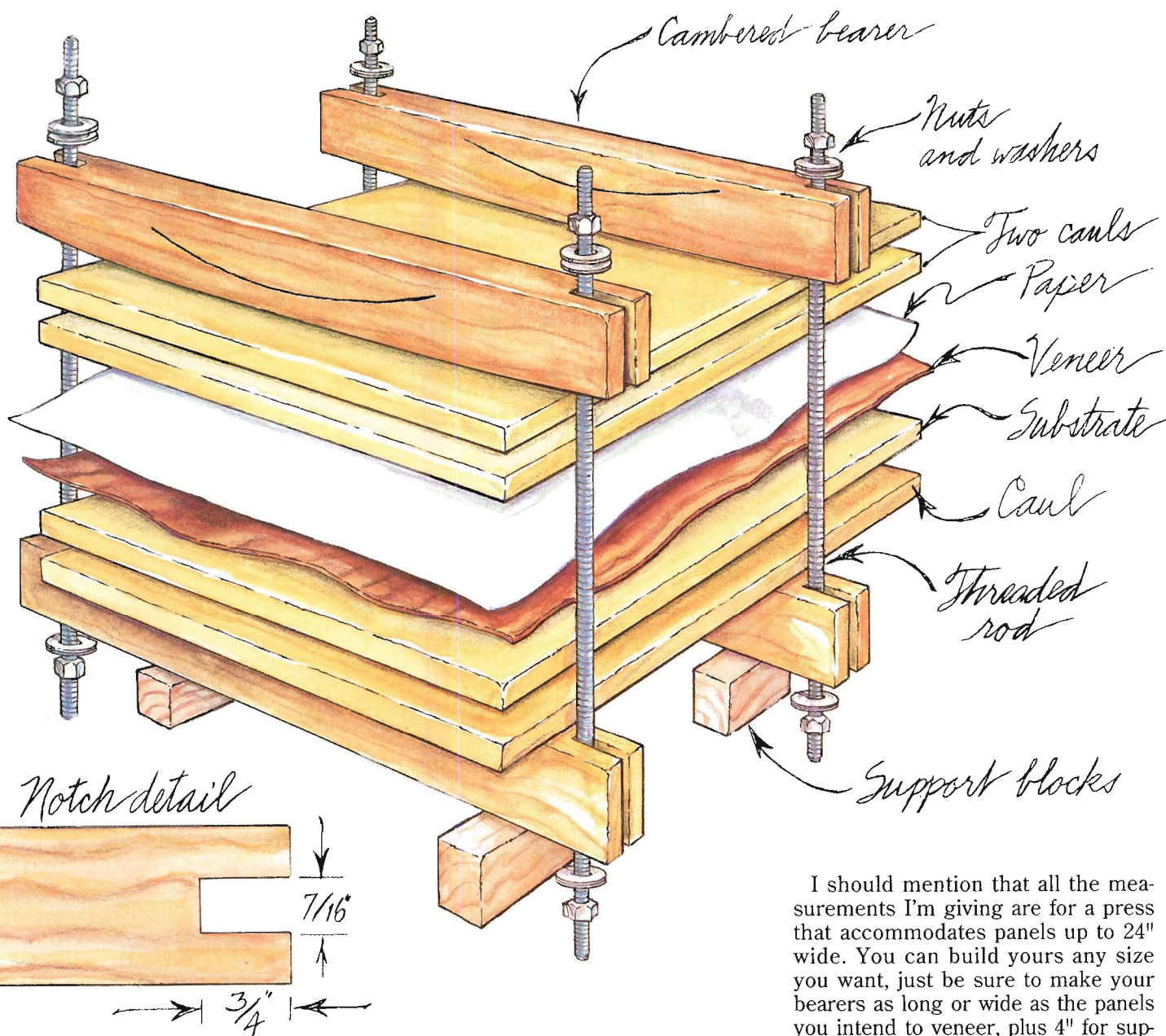
Screw and plug the tray tops to the tray rails, keeping the rails set back 1/2" to make room for the slides. Gluing the tray fronts to the tray tops creates a finished appearance.



Al is the technical service manager at The Woodworkers' Store. Send your hardware questions or comments to Al c/o Today's Woodworker, Dept. HH, Rogers, MN 55374-0044.

A Simple Veneer Press

By Tom Caspar



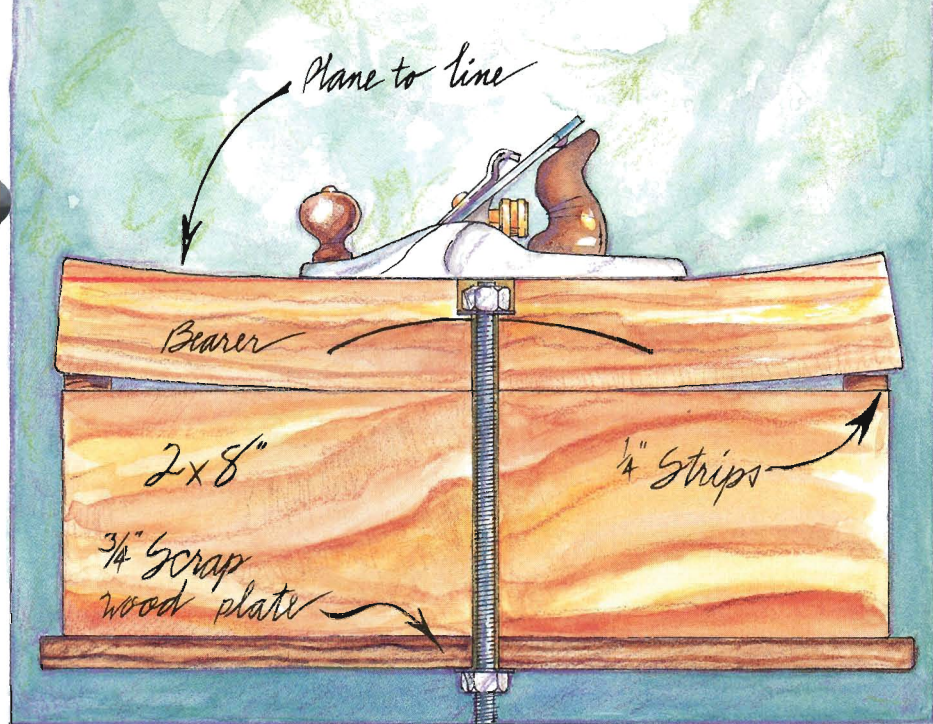
I should mention that all the measurements I'm giving are for a press that accommodates panels up to 24" wide. You can build yours any size you want, just be sure to make your bearers as long or wide as the panels you intend to veneer, plus 4" for supporting the hardware.

To begin, get your hands on a 2" x 8" x 8' piece of Douglas fir that's as knot free as possible. Crosscut the board into three 24" long sections, working around as many knots as you can. Select the best piece and rip it in half for making your first bearer. Mill the halves down to 1 1/4" x 2 1/2", then mark the edge on one piece at its center and drill a 1" diameter x 1/2" deep counterbore and a 3/8" pilot hole.

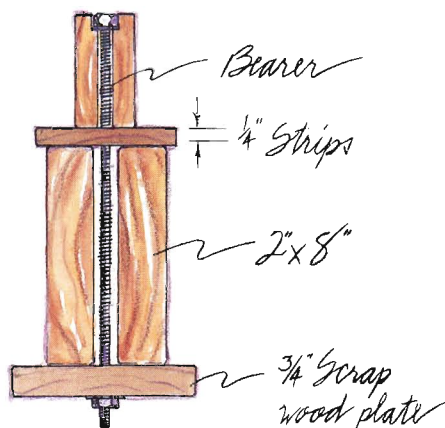
One guy used a parked car and another tried a stack of encyclopedias. Neither worked very well. Bricks, 101 clamps, a specially designed workbench—all have been used to press down a simple sheet of veneer.

For my last veneering project I designed a press that's cheap and easy to build. In fact, the materials are readily available at any building center and the technique is adaptable to any size workpiece. Like many other

presses, the heart of my design is a set of curved, or cambered, bearers. These bearers distribute pressure onto the veneer with the help of three cauls. The difference is that I have found a method for curving the bearers so they provide continuous contact along their full length. An improperly curved bearer just presses down at a few points, creating an irregular pressure pattern on the glue-up.



Make a stand out of the 2" x 8"s for bending the first bearer. Stand them on top of the plate, then slip a threaded rod through the bearer, between the 2" x 8"s and through the plate hole. Place the 1/4" thick strips beneath the bearer, add the washers and tighten the nuts until the bearer touches the 2" x 8"s.



Now drill a 3/8" diameter hole in the center of a 3/4" thick scrapwood plate and set the other two sections of the 2" x 8" on the plate, as shown above. Position two 1/4" thick sticks on the 2" x 8"s and place the bearer on the sticks. Slip a 12" piece of threaded rod through the hole, between the 2" x 8"s and through the plate, and tighten nuts on both ends of the threaded rod with a socket wrench. Stop tightening when the bearer touches the 2" x 8"s and use a straightedge to draw a line near the top of the bearer showing the low point of the curve.

Release the bearer from the threaded rod and bandsaw just outside the line, then return the bearer to the fixture, tighten the nut and hand plane the edge right to the line. Since the

camber is so subtle, I draw a large curved line on the side of the bearer to indicate the correct edge.

Take the assembly apart, then rip and mill the other 2" x 8"s like you did the first one. Trace the shape of the first bearer onto each of the other pieces and bandsaw them close to the finished profile. Now screw the first bearer to the others and rout identical curves using a long flush cutting laminate bit. Cut 7/16" wide by 3/4" deep notches in both ends of each bearer, and nail support blocks to half of the bearers to raise the press off your workbench, allowing room for the threaded rods and nuts.

Generally, you'll want a pair of bearers pressing on your veneer every four to six inches, so be sure to make enough for your anticipated needs.

Using Your Veneer Press

Before spreading any glue, try a dry run to familiarize yourself with the mechanics of the press. Set it up on a level surface, spacing the bottom bearers evenly, then lay down the cauls, substrate, veneer and paper, as shown in the drawing at far left. Once you add the top bearers and the hardware, begin tightening the bearer nearest to the center of the panel. Tighten one end about 3/4 of the way, then completely tighten the other end. Return to the first end to finish tightening the nut, then work your way through the other bearers to the ends of the press.



Use a small roller to spread glue evenly on the substrate. To avoid excessive curling, don't put glue directly on the veneer.



Place the veneer on the substrate, then lay newspaper down to keep any squeeze out from bonding the cauls to the veneer.



Tighten the nuts with a box wrench until you see a consistent bead of glue squeeze out along the edges of the panel.

An Artist's Pencil Box

Here's a great weekend project you can make for an aspiring young artist. It will safely hold a collection of fragile colored pencils for carting along in a bookbag or backpack.

By David Larson

I remember receiving a special Christmas gift when I was eight or nine years old. It was a simple wood box filled with personalized pencils in different colors. I cherished those pencils and made them last for years—and still have the box on my desk at work. It looks odd surrounded by high tech computer equipment, but does a nice job reminding me of simpler times. Thinking about this one day, I realized what an ideal gift project it would make, and soon found myself in the shop working out the design details on the drawing board.

The key to making the pencil box is to construct it as one assembly and then rip it in half to separate the upper and lower compartments. This may seem strange, but it's actually a common box making technique. The two units are then held together by a dowel, which allows them to swing apart when the top is slid back.

Cut Everything To Size

Start making your pencil box by cutting a 3/4" x 3" x 24" piece of stock and slicing it in half with your band saw. Plane the thin strips down to 5/16" in thickness

and cut the sides (pieces 1) to size from this stock. Next, plane some of this resawn stock down to 1/8" for the top, middle panel and bottom panel (pieces 2, 3, and 4), and finish up by machining some 1/2" material for the endwalls (pieces 5 and 6).

Now you can rout the grooves in the sides and endwalls. Chuck a 1/8" straight bit in your router table and rout the grooves for housing the middle and top panels, as shown in the **Side Panel Groove Locations drawing** at far right. Rout the grooves 1/8" deep, carefully setting your stock onto the bit at the starting

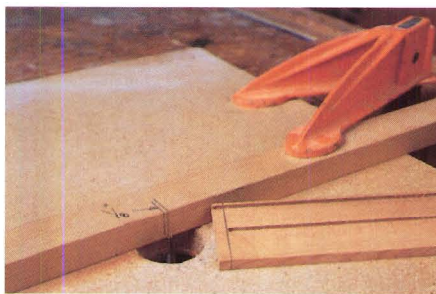


Figure 1: Outline the bit's cutting area on the fence, then use the lines as starting and stopping points when routing the stopped grooves.

point and lifting it off the bit when you reach the stopping line. Be sure to stop the front end of the top groove and both ends of the middle groove 1/4" from the ends of the stock (See **Figure 1**).

Putting Everything Together

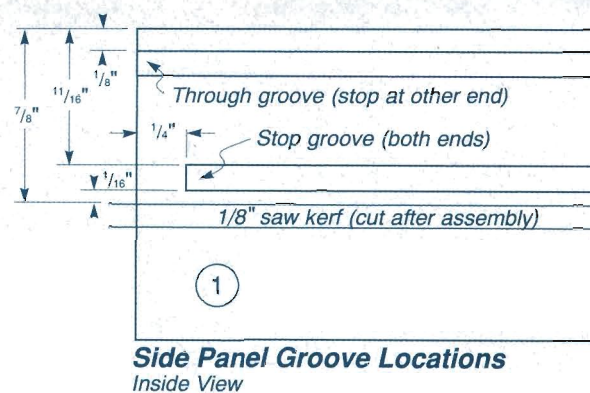
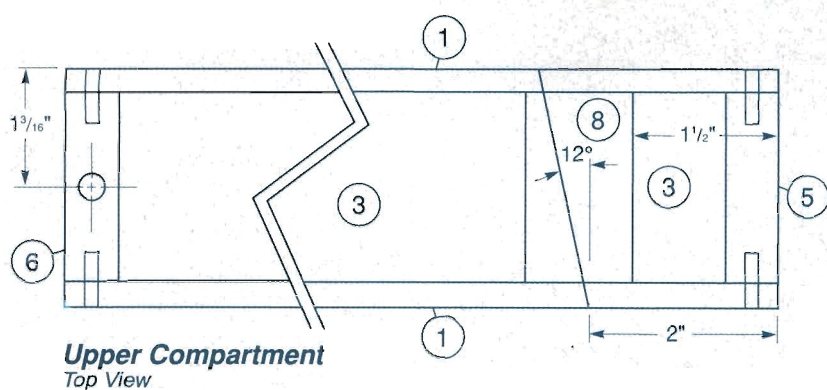
Gluing up is really quite simple, just be sure to use the glue sparingly or it will run all over the inside of your box. Spread glue in the middle grooves of the sides and endwalls, and on the ends of the endwalls. Slip the middle panel into the sides and add the endwalls, then, to help keep the assembly square, slide the top into place without glue. Next, spread glue on the bottom edges of the box, square up the assembly and clamp the bottom panel into position.

As the glue dries, drill two 1/8" diameter x 1/2" deep holes at each joint, as shown in the **pin location detail** at right—be sure you avoid drilling into a groove. Cut short pins (pieces 7) and glue them into the holes, which will reinforce the weak butt joints. This last step wasn't done on my original pencil box, but I'm sure it would have helped prevent the sides from pulling away from the endwalls over time. Sand the dowels flush with the sides.

Splitting the Box

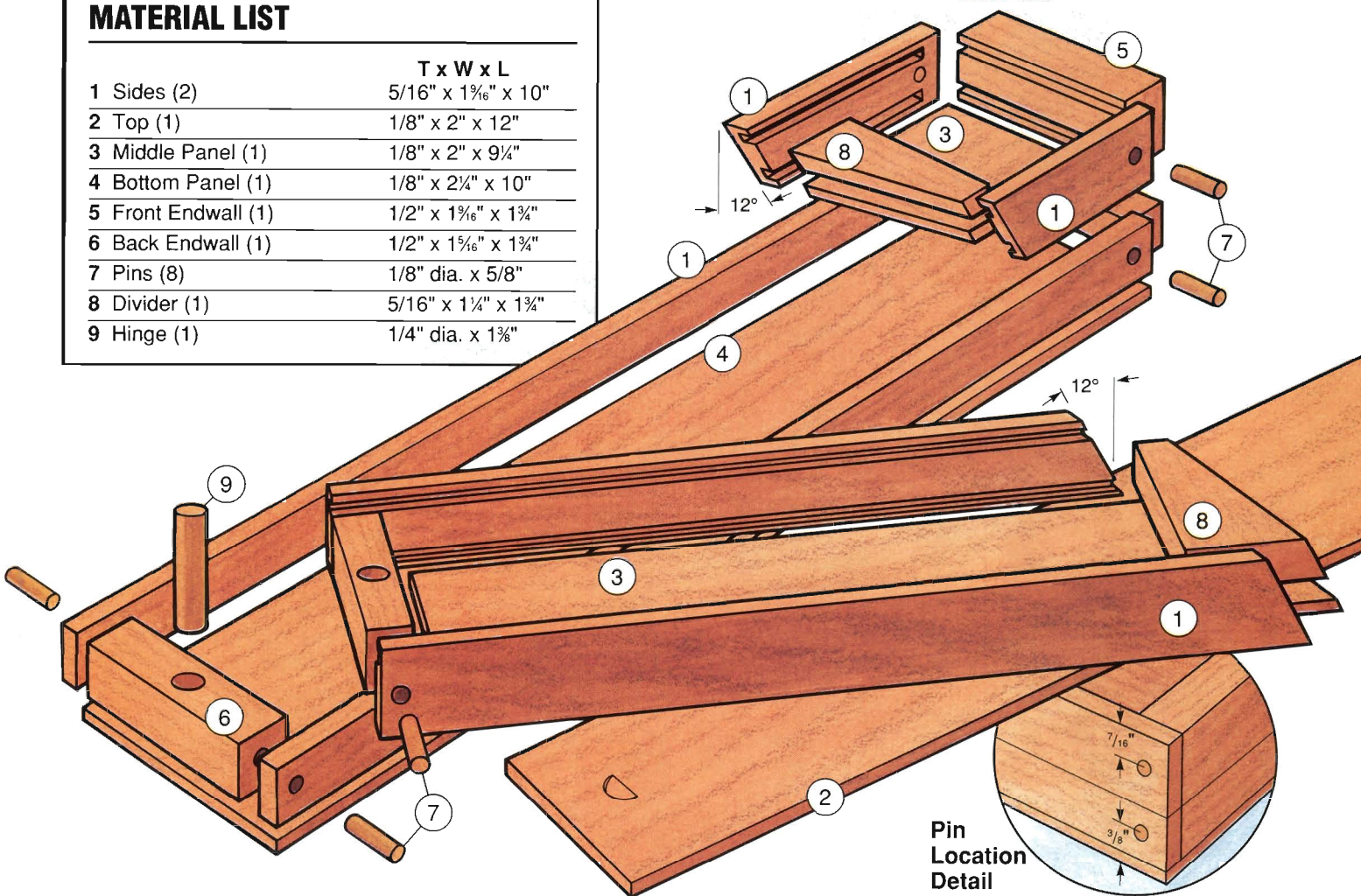
Now comes the one step in the project that always makes me a little nervous—ripping the box in half. Really, there isn't any mystery to this, it just seems like it would





MATERIAL LIST

	T x W x L
1 Sides (2)	5/16" x 1 1/8" x 10"
2 Top (1)	1/8" x 2" x 12"
3 Middle Panel (1)	1/8" x 2" x 9 1/4"
4 Bottom Panel (1)	1/8" x 2 1/4" x 10"
5 Front Endwall (1)	1/2" x 1 1/8" x 1 3/4"
6 Back Endwall (1)	1/2" x 1 1/8" x 1 3/4"
7 Pins (8)	1/8" dia. x 5/8"
8 Divider (1)	5/16" x 1 1/4" x 1 3/4"
9 Hinge (1)	1/4" dia. x 1 1/8"



be too easy to cut it at the wrong place. Raise your table saw blade to cut through the box and clamp the fence 7/8" from the blade. With the top of the box riding against the fence, rip the box in two. I made allowances in the material list for the loss of a 1/8" kerf. Plane the edges to get a good fit, then cut a 5/16" thick block for the divider (piece 8) and glue it into the upper compartment, as shown in the **Upper Compartment drawing** above. Next, stack the compartments and use a drill press to bore a 1/4" hole through the back endwall for the hinge dowel (piece 9).

Cut the hinge to length and glue it into the lower compartment. Trim the dowel flush with the bottom of the box, then layout the compound angle cut in the upper compartment, as shown above. Tilt your band saw table 12° and turn your miter gauge 12°, then pass the upper compartment through the blade. Clean up the cuts with a sharp chisel and sandpaper.

Stack the compartments again and you'll notice that, due to the saw kerf, the lower compartment is a little longer than the two upper sections combined. Glue the front part of the

upper compartment to the lower compartment, then, after the glue dries, sand the ends flush.

Cut the top to length and chuck a 1/2" Forstner bit in your drill press. Tilt the drill press 25° and bore into the top just 1/16" to form the half moon shaped finger pull.

Apply a couple coats of oil finish and you've completed the pencil box. Once you've made it through your first box the next one will go much faster. All that's left is to fill it with pencils and you'll give some youngster a rich childhood memory. ■



Big Timber Logging Truck

One of our favorite Tricks of the Trade veterans has created his own addition to our convoy of over-the-rug haulers. Who's next?

By Dick Dorn



After building David Larson's two toy trucks presented in issues 32 and 35 of Today's Woodworker, I decided to branch out on my own and made a third eighteen wheeler to add to the series. My log hauler is built to the same scale and with the same types of details as the first two trucks, making it interchangeable with any of Dave's cabs and trailers.

The log hauler takes about ten hours to build, and I used five minute epoxy for all the joinery, as Dave suggested in his articles. Other than the wheels, barrels and dowels (available in the hardware kit below), I used scrapwood for the project. Maple and walnut make a nice contrast, but any wood will do. I didn't glue the staves to the trailer because I thought they'd be more fun to play with if they were loose. If really young kids will be using your truck, however, I recommend gluing in the staves to prevent any chance that they end up in someone's mouth.

Cutting Timber

As with the previous two trucks, I too found it best to start with the upper cab (piece 1) since it determines the size and arrangement of so many other pieces. Cut a 1" thick x 6" wide x 1 5/8" long piece of walnut, then follow **Figures 1, 2 and 3** and the full size pattern on the **Pinup Shop drawings and Patterns** insert (between pages 12 and 13) to cut the cab to shape.

Once the upper cab machining is completed, cut the lower cab (piece 2) to size and epoxy the two cab parts together. Next, cut oversized stock for the grill (piece 3) and rout grooves in it with a V-groove bit, as shown on the full size pattern. Set the oversized grill aside and cut an extra long piece of walnut for the engine (piece 4). Now cut the engine and grill to shape (following the full size patterns), and epoxy the grill to the engine. Epoxy this assembly to the lower cab.

Trace the pattern of the truck base (piece 5) onto some maple and cut it to shape with your table saw and a 1/2" dado blade (**See Figure 4**). Bore the holes in the base with a drill press, then epoxy the cab and engine

Logging Truck Hardware Kit

A hardware kit is available for this project that includes all the wheels and axles, running lights, headlights, gas tanks, logs and plenty of 1/8" and 1/4" dowels for making the smokestacks, hitch and trailer supports.

Item #57638 (use order form) . \$21.95

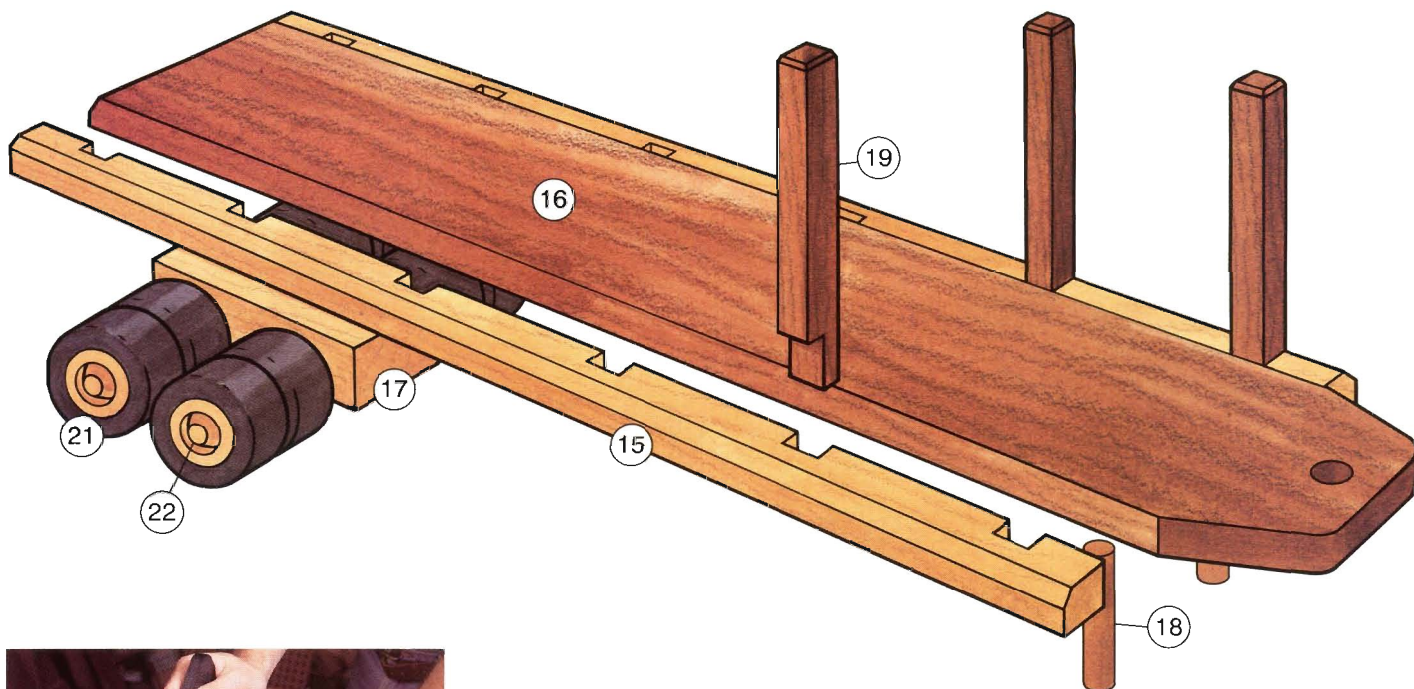


Figure 1: After cutting stock to size for the upper cab, adjust your blade height and fence and make two cuts to define the inside edges of the posts.



Figure 2: Continue adjusting the fence about 1/16" at a time to make a series of passes for nibbling away the waste in the cab.



Figure 3: Lay out the posts and overall length of the cab, then support the stock with your miter gauge while clearing the remaining waste.

MATERIAL LIST

	T x W x L		T x W x L
1 Upper Cab (1)	1" x 2" x 1 1/8"	12 Fenders (2)	1/2" x 1" x 1 1/2"
2 Lower Cab (1)	1" x 2" x 1 1/8"	13 Bumper (1)	1/4" x 3/4" x 3"
3 Grill (1)	1/4" x 2" x 1"	14 Gas Tanks (2)	5/8" x 1 1/8" x 1 1/8"
4 Engine (1)	1" x 2" x 1 1/4"	15 Rails (2)	1/2" x 1/2" x 12 1/2"
5 Truck Base (1)	3/4" x 2" x 5 1/2"	16 Trailer Bed (1)	1/2" x 2" x 13 3/8"
6 Headlights (2)	7/32" x 1 1/8"	17 Trailer Base (1)	3/4" x 1 1/8" x 2 1/2"
7 Radiator Cap (1)	7/32" x 1 1/8"	18 Trailer Supports (2)	1/4" x 1 1/4"
8 Running Lights (3)	7/32" x 1 1/8"	19 Staves (12)	3/8" x 3/8" x 2 1/2"
9 Upper Smokestack (1)	1/8" x 1 1/4"	20 Logs (6)	3/4" x 11 1/4"
10 Lower Smokestack (1)	1/4" x 1 1/8"	21 Wheels (18)	1" diameter
11 Hitch (1)	1" x 2" x 1 1/8"	22 Axles (10)	7/32" x 1 1/8"

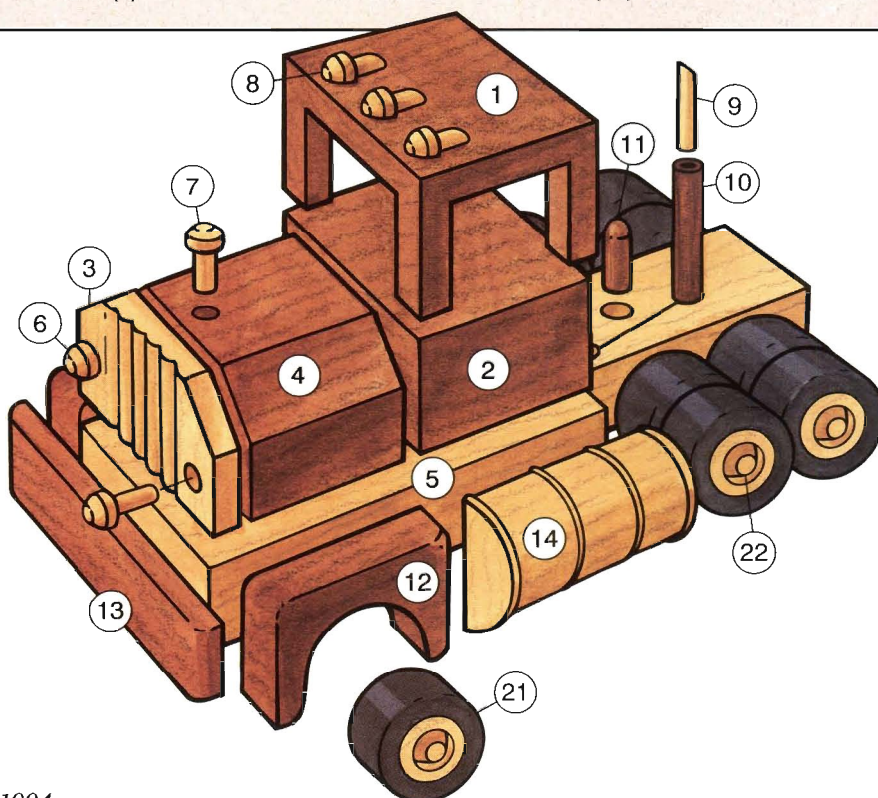




Figure 4: Use a 1/2" dado blade to cut notches for the rear wheels in the truck base. Make several passes, and use a set-up block to limit the cuts.

into position. Now drill 7/32" holes into the grill and engine for the headlights and radiator cap (pieces 6 and 7), which you can make from the extra axles that come with the hardware kit. Epoxy the pieces into the holes and cut three more axles to length for the running lights (pieces 8). To flatten one side of each running light, hold them with a pliers against your belt sander. Roundover the tail end of the lights by hand, and epoxy them to the cab roof.

Cut dowels to length for the smokestack and hitch (pieces 9, 10 and 11) and drill a 1/8" hole in the lower stack, as shown in **Figure 5**. Epoxy the upper stack into the lower stack and glue this assembly and the hitch into the holes in the truck base. Cut the top of the stack at a 45° angle, flush with the roof of the cab.

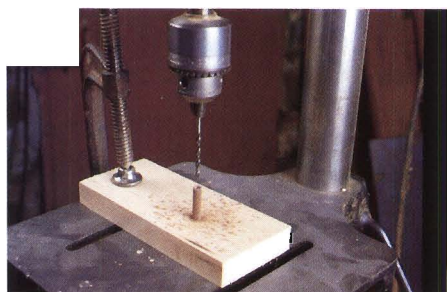


Figure 5: An easy way to center a dowel below a small drill bit is to first clamp scrapwood to your drill press table and drill a hole to fit the dowel.

Trace the pattern of the fenders (pieces 12) onto some oversized 1/2" thick walnut and drill out the wheel wells with a 1 1/8" bit. Next, bandsaw the outside shapes and epoxy the fenders to the truck, making sure the wheel wells are centered on the axle holes. Cut walnut for the bumper (piece 13), sand its ends to the shape shown on the pattern, and epoxy it to the base and fenders.

Bandsawing the barrels in half for the gas tanks (pieces 14) requires a V-block jig made from a piece of scrap-

wood, as shown in **Figure 6**. Set your fence to cut the barrels about 1/8" off center, then clean the saw marks off the larger halves and epoxy them to the truck. Be sure to butt the flat end of the tanks tightly against the fenders.

Making the Log Trailer

The key to making the trailer is to get the stave holes spaced evenly. Rip maple for the rails (pieces 15) and lay-out the holes, as shown on the full size pattern, then install a 3/8" dado blade in your table saw. Raise the blade 1/4" and cut the dadoes in both rails at the same time while supporting the stock with your miter gauge.

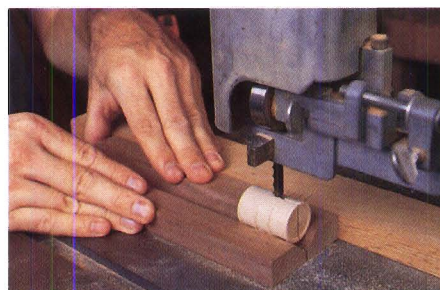


Figure 6: Cut a V-groove in scrapwood and hot glue the barrel into the groove. The hot glue will hold the barrel steady while you bandsaw it in half.

Now cut walnut stock for the bed (piece 16) and bandsaw the angled front end, as shown on the full size pattern. Epoxy the rails to the bed, being careful to apply the epoxy sparingly so it doesn't drip into the stave holes. After the epoxy dries, plane the bed assembly smooth and rout chamfers on the back end and side edges.

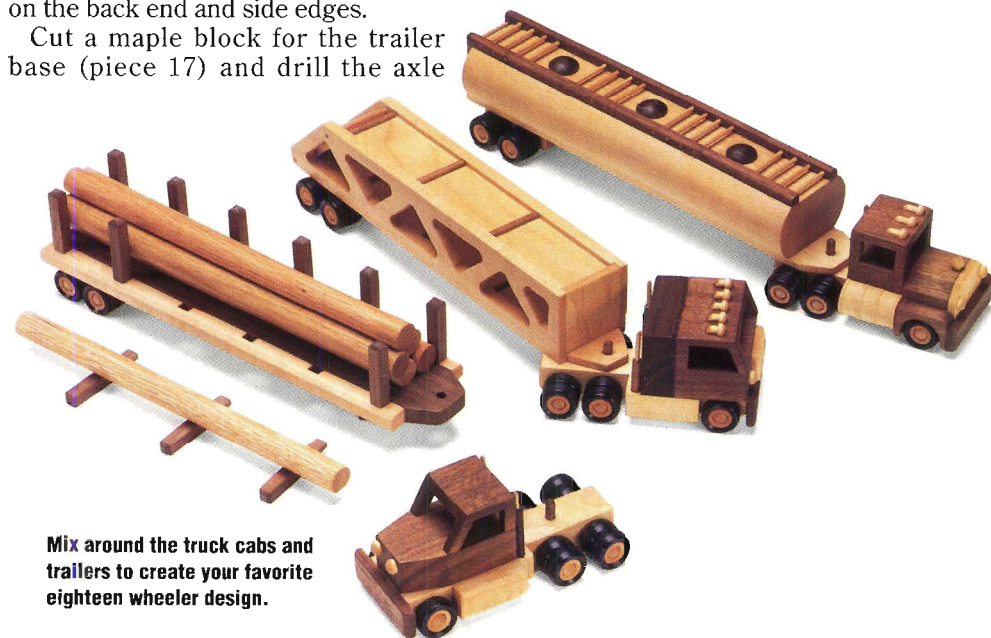
Cut a maple block for the trailer base (piece 17) and drill the axle

holes, as shown on the full size pattern. Epoxy the base to the underside of the bed, then drill 1/4" holes for the trailer supports (pieces 18). Cut two walnut dowels for the supports and roundover one end of each piece by hand sanding. Glue the supports into the holes.

To make the staves (pieces 19), cut several pieces of 3/8" thick stock to length, then cut a rabbet at one end of each piece with a 1/2" dado blade raised a hair over 1/8". Now rip the stock into 3/8" wide strips and check their fit in the trailer bed holes. Sanding the staves resulted in a perfect slip fit on my log hauler. Complete the staves by chamfering their top edges with a stationary disc sander or belt sander.

Cut dowels to length for the logs (pieces 20) and apply a couple of coats of an oil finish to the truck, logs, wheel hubs and axles (pieces 21 and 22). Don't coat the portion of each axle post that fits into the base holes as the finish will interfere with the gluing process. After the finish dries, mount the wheels on the axles and epoxy the axles to the truck and trailer bases. Be sure the wheels spin freely as the epoxy sets.

This third truck gave me a unique design for each grandkid—a real convoy. Since all the parts are interchangeable they can make up different combinations, and when they all get their engines running together it's easy to imagine that I've just pulled into a major interstate truck stop. ■



Mix around the truck cabs and trailers to create your favorite eighteen wheeler design.

Brush Cleaning and Care

By Bob Flexner

Of all the chores associated with finishing, cleaning and caring for brushes is surely the most disliked. Unless you're willing to toss out a \$15.00 to \$20.00 tool after each use, however, brush care is necessary.

Keeping brushes in good shape is more of a mental exercise than a physical one. It takes only five to ten minutes to clean a brush. The trick is to make cleaning a part of your finishing routine. This way you won't think of it as a chore you have to do after finishing. As time goes by, you'll develop an attachment to your brush just as you do to your finest wood-working tools.

Cleaning Brushes

When applying the same type of finish every twenty-four hours or so, you can store a brush between coatings in its appropriate thinner (see box at top right), in commercial brush cleaner or in plastic wrap to shield it from the air. If you do soak the brush in a can or jar, be sure to suspend it so the bristles remain straight—a dowel rod or string run through a handle hole provides an easy way to hang the brush.

Waterbased finishes are easy to clean. First rinse the brush with water, then follow with soap and water. Commercial cleaners work faster, but are expensive.

If you've used any other type of finish, the cleaning process requires a few more steps, but it's still easy.

Start by pouring one to two inches of thinner in a container and squeeze the brush against the bottom. You may need to work thinner into the bristles with your fingers, just be sure to wear gloves.

If you applied an oil, varnish or polyurethane finish, wash the brush next in lacquer thinner. Lacquer thinner removes the oiliness left by the mineral spirits. Commercial brush cleaners, which are essentially lacquer thinner with a little soap added to increase cleaning strength, can be

substituted for the first two steps.

After each step, be sure to remove excess thinner by shaking the brush or holding it between the palms of both hands and twirling it inside an empty can.

Now wash the brush in soap and water, running your fingers through the bristles to make sure you remove



Passing an old hair comb through the brush untangles and straightens the bristles, leaving them in better condition for air drying.

all the finish. Some finishers don't like water on a natural bristle brush. Personally, I don't see that it causes any harm, and it does clean the brush better. Comb the bristles straight with a brush comb (available at paint stores), a fork or an old hair comb, as shown in the photo above.

If the brush is used solely for applying oil, varnish or polyurethane finishes, rub a few drops of a light oil, such as mineral oil, onto the bristles. This keeps the bristles soft, but will adversely affect all other finishes if applied to general purpose brushes.

Finally, to keep the bristles straight and clean as they dry out, wrap your brush in heavy, absorbent paper, such as a brown paper bag or heavy paper towel, and hold it in place with a rubber band or masking tape. Store the brush in a drawer or hang it from a hook.



The Solvent Solution

The key to cleaning a brush begins with the proper use of a solvent to remove the finish. Here's a quick review of the most common finishes and the most appropriate solvents.

Finish	Solvent
Oil	Mineral Spirits
Varnish	Mineral Spirits
Polyurethane ...	Mineral Spirits
Shellac	Denatured Alcohol
Lacquer	Lacquer Thinner

Reclaiming Brushes

There are several ways to reclaim a brush with hardened finish in its bristles. For shellac and lacquer, soak the brush in the appropriate thinner, in a commercial brush cleaner, or wash the brush in a strong solution of trisodium phosphate (available as TSP at paint stores). For water-based finishes, soak the brush in paint-and-varnish remover, commercial brush cleaner, acetone, toluene, or xylene, and then wash with TSP. For oil, varnish, and polyurethane, try soaking the brush in paint-and-varnish remover, and then wash with TSP. It will be difficult to clean the bristles completely.

Like using a finely tuned and sharpened hand plane, a well maintained brush can be a joy to work with. All it takes is a few minutes at the end of each application of finish, and the reward is worth the effort.

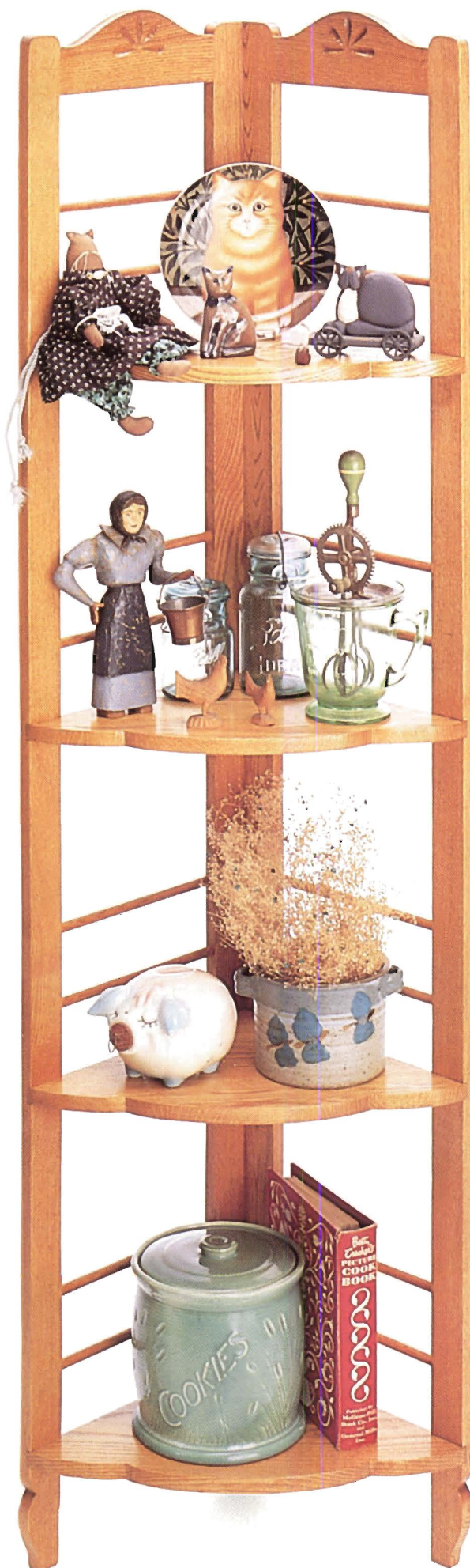
Suspending the brush from a dowel keeps the bristles straight while they soak in a jar of solvent. Once the brush is clean, wrap it in heavy paper to preserve the straight bristles.



Baker's Shelf

Put an old fashioned cooling rack to use displaying your favorite collectibles.

By Chris Inman



In the old days, freshly baked goods were removed from the oven and placed on a rack to cool. The open structure of the rack, which was usually made of wrought iron or wood, allowed air to circulate easily, soon filling the house with the smells of apple pie and steaming sourdough bread.

Today, a cooling rack can still be useful in a kitchen, even if you don't do that much baking. It's ideal for open storage and for displaying collectibles, and the space saving shelf we've designed tucks neatly into a corner. This one was made of red oak and finished with a light colored golden oak stain (see the Planning Ahead box on page 16), but the project would look great if made of cherry or maple as well.

Constructing the baker's shelf takes only a weekend to complete and, except for the carving, does not require any handwork. The dado joints are reinforced with screws and the counterbores for the screws are covered with matching grain wood plugs, making the joints nearly invisible. To keep your baker's shelf square (preventing it from rocking on the floor) and to make the assembly go smoothly, it's important that the dados for each shelf are perfectly aligned. The trick to pulling this off is to cut the dados in a wide board and then rip the board apart to form the four shelf standards.

You'll find full size patterns for the shelves, top rails and front standards on the **Pinup Shop Drawings and Patterns** between pages 12 and 13. If you're planning to build more than one baker's shelf, make a hardboard template from these patterns for more consistent results.

Cutting Wood

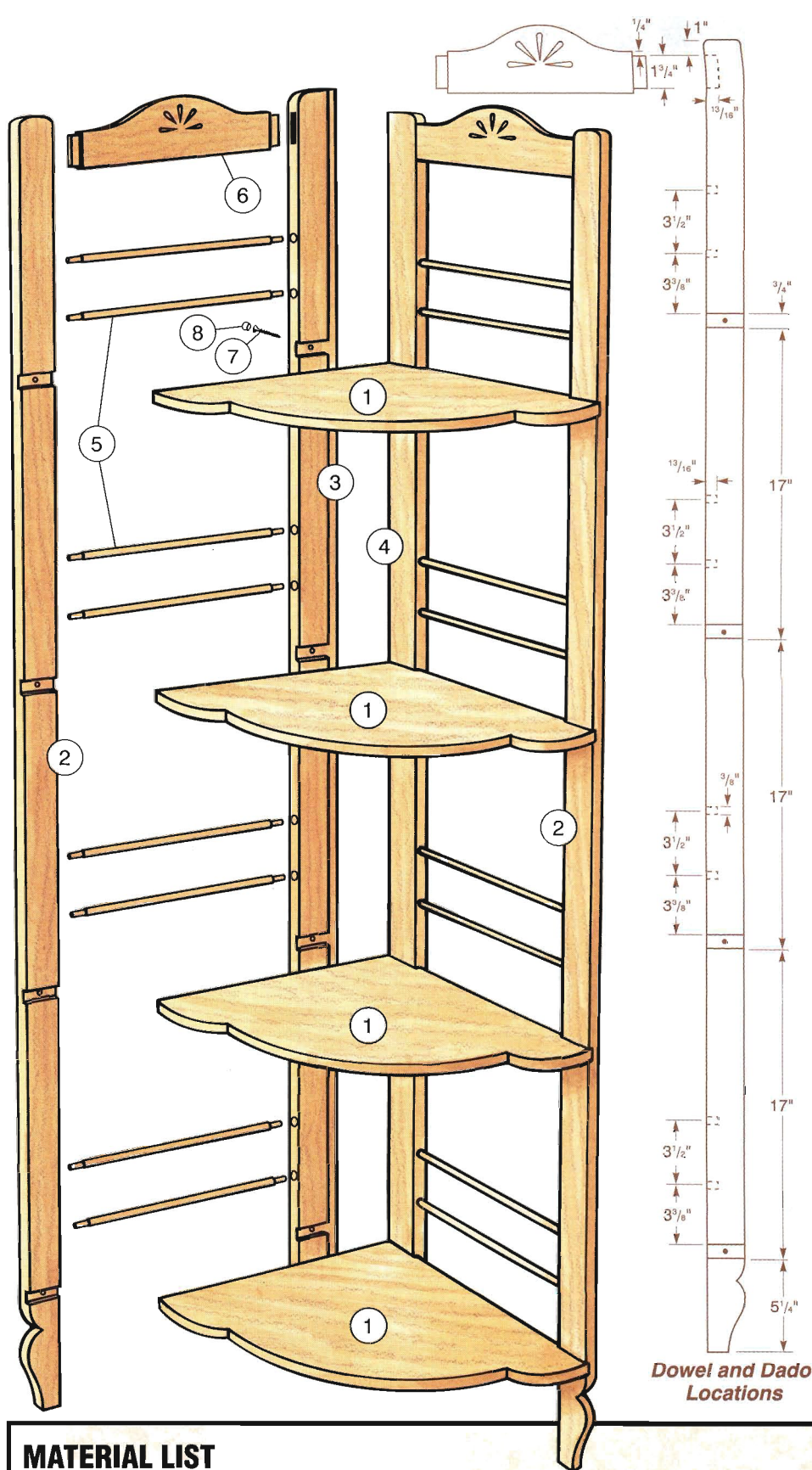
Begin working on your baker's shelf project by joining and gluing up a panel for the shelves (pieces 1). Make the panel at least 14" wide and 70" long so you can cut all four shelves from it. After the glue sets, scrape off the glue squeeze out, then give the glue time to fully cure before planing the panel flat (planing too soon may result in a depression along each joint line as the water from the glue evaporates).

Meanwhile, plane a $3/4"$ x $11"$ x $75"$ board flat and joint one edge perfectly straight. Rip the second edge parallel with the first and layout the dados for the standards (pieces 2, 3 and 4), as shown in the **standard elevation** at right. Install a $3/4"$ dado blade in your table saw, raise the blade $1/4"$ and screw a long auxiliary fence to your miter gauge to support the long board. Make a few test cuts in scrapwood to guarantee the accuracy of your miter gauge, then plough the four shelf dados.

Replace the dado blade with a ripping blade and cut the wide board into four narrow pieces for the standards, following the dimensions in the material list. Ripping the board with the dados facing up will reduce the amount of tearout at the dado walls.

Pass your jointer plane over the edges of each standard to make them square and flat, then reinstall the $3/4"$ dado blade and rip a $1/4"$ deep rabbet along one edge of the rear left standard (piece 3). This rabbet aligns the two rear standards and increases the gluing area of the assembly for a stronger joint. Now you can see why the rear standards were ripped at different widths —when the right piece is fitted into the left, they appear to be the same size.

Layout the holes for the dowels (pieces 5) and the mortises for the rails (pieces 6) on each standard, as shown in the **Dowel and Dado Locations** drawing at right.



MATERIAL LIST

	T x W x L		T x W x L
1 Shelves (4)	$3/4"$ x $13"$ x $20\frac{1}{2}"$	5 Dowels (16)	$1/2"$ x $11\frac{1}{8}"$
2 Front Standards (2)	$3/4"$ x $2"$ x $72"$	6 Rails (2)	$3/4"$ x $4"$ x $11\frac{1}{8}"$
3 Rear Lt. Standard (1)	$3/4"$ x $2\frac{3}{4}"$ x $72"$	7 Screws (16)	#8- $1\frac{1}{4}"$
4 Rear Rt. Standard (1)	$3/4"$ x $2\frac{1}{4}"$ x $72"$	8 Plugs (16)	$3/8"$ diameter

Planning Ahead: The Baker's Shelf Project

Building the baker's shelf will take about fifteen hours and require a table saw, drill press, saber saw and router. Benjamin Moore's Golden Oak stain followed by sanding sealer and two coats of varnish is the recommended finish.

- 17 board feet of 3/4" thick red oak
- Six 1/2" x 36" red oak dowel rods
- Sixteen 3/8" dia. face grain oak plugs
- Sixteen #8-1 1/4" wood screws

Remember to group your standards into left and right subassemblies, or you may end up with pieces that can't fit together. Next, chuck a 3/8" brad point bit in your drill press and clamp a fence to the table to center your standard stock under the bit. Set the depth stop and bore the 13/16" deep holes.

To form the rail mortises in the standards, set up your router table with a 1/4" straight bit and, once again, clamp a fence to the table to center the stock on the bit. Mark the fence to indicate the bit's cutting area, and use the marks for starting and stopping

chuck a 1/2" straight bit in your router table and clamp a fence to the table so it just grazes the bit. Normally, using a fence with an exhaust hole would be best, but in this case a fence without a hole will provide better support and minimize vibration while routing the dowel tenons. Clamp a stop block to the table so you can cut 3/4" long tenons (See Figure 3). Now raise the bit 1/16" and slide a dowel over the bit, turning it slowly to cut a sample tenon. Check the fit of the tenon in a standard hole, make any adjustments, and cut another sample tenon. Once you have a perfect fit,

standard mortises. Install a 1/2" dado blade in your table saw and clamp a set-up block to the fence. Adjust the fence to cut 3/4" long tenons and raise the blade 1/4". Cut a sample tenon on some scrapwood and test the fit in a mortise. When you're satisfied with the fit, cut the tenon cheeks on the rail stock, then turn the pieces on edge and cut the bottom shoulders using the exact same set-up.

It's best to rout the sunburst on each rail now, while there's still plenty of stock to support your router. Cut out the full size pattern of the rail and trace the sunburst and top edge outlines onto each piece. Next, chuck a V-groove bit in your router and adjust the depth stop to permit a 3/16" deep cut. Using your router freehand, rout away the waste within each ray of the sunburst, staying about 1/16" inside the lines. Next,

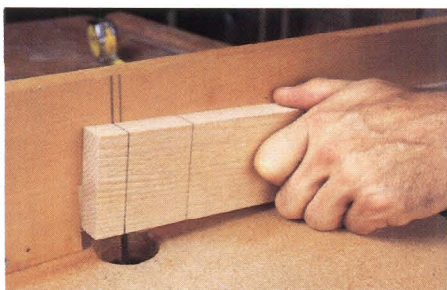


Figure 1: Draw lines on the router table fence to show the bit's cutting area, then start and stop the mortise routing as your layout reaches the lines.



Figure 2: To improve the safety of cutting dowels to length, construct a simple table saw sled with a V-groove that rides in the miter gauge slots.

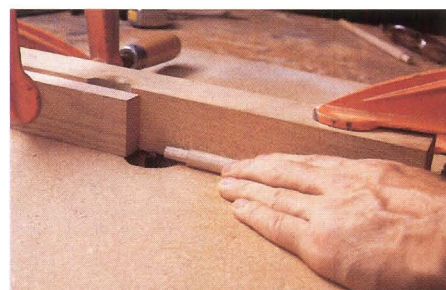


Figure 3: Clamp a stop block to the router table fence and slowly rotate your dowels over the 1/2" straight bit to form the 3/8" x 3/4" tenons.

the cuts (See Figure 1). Be sure to rout the mortises in several shallow passes to ease the strain on the bit.

Trace the full size pattern of the feet onto the front standards and cut them to shape with a saber saw. Now file and sand these shaped edges before you begin the shelf assembly.

Cutting Tenons on Dowels

The holes in the standards could have been drilled with a 1/2" bit for joining the 1/2" diameter dowels (pieces 5). This would make the project easier, but would diminish the strength of the assembly. Instead, 3/8" diameter holes leave more meat around the joints, to reduce the chance of splitting, and the tenon shoulders greatly improve the rigidity of the structure.

Cut the dowels to length using a jig like the one shown in Figure 2—a few extra will come in handy. Next,

meaning that the tenon slips into the hole with only slight resistance, rout tenons on both ends of all the dowels.

To make inserting the dowel tenons into the holes a little easier, and to provide some glue relief, chamfer the end of each tenon. Clamp a belt sander upside down to your workbench and spin the end of each tenon against the running belt. Leaving the tenon ends square could cause excessive hydraulic pressure in the holes as the dowels are installed, possibly causing the standards to split.

Making the Top Rails

Cut stock for the rails (pieces 6), making sure the edges are ripped parallel to each other, and double check to see that the ends are perfectly square. Before bandsawing the top edge of each piece, form tenons on the rail ends where they will join the

use a V-tool, a veining tool and a 3/8" chisel to complete the carvings (See Figure 4).

Bandsaw the rails to shape and sand the curved edges smooth. Cut 1/4" deep shoulders on the top edge of each tenon with a fine toothed handsaw and a chisel, then use a file to roundover the edges of the tenons

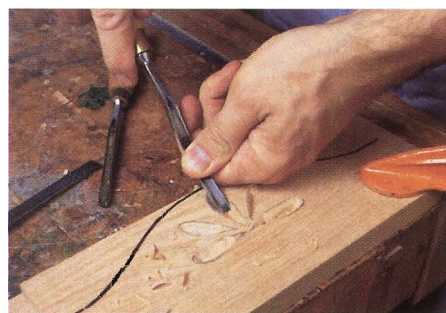


Figure 4: After removing most of the waste with a router and V-groove bit, complete the sunburst carvings using a V tool, a veining tool and a chisel.

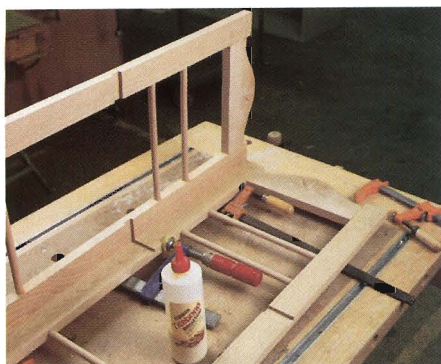


Figure 5: The rabbet automatically registers the rear standard assembly, but make sure the dadoes line up before tightening the clamps completely.

until they fit into the routed mortises. Try assembling each set of standards with the dowels and rail, without using glue, to make sure all the parts fit properly.

Pulling the Skeleton Together

Now that all the standard components are made you can assemble the structure of the baker's shelf. It's best to assemble the project in stages, first constructing one pair of standards with their dowels and rail, and then the other set. Don't bother with the shelves until after the two sets of standards have been joined.

Organize your pieces into the two subassembly groups, then spread glue in all the dowel holes and mortises of one set. Install the dowels and rail in one standard and draw the second standard into place with clamps. Repeat this procedure on the second set, and shave off any glue squeeze out with a chisel once it becomes rubbery. After sitting in the clamps for a few hours, remove the subassemblies and center a counterbored pilot hole at each dado location (see the **Dowel and Dado Locations** drawing on page 15).

Sand the rail joints flush on each subassembly and shape the top ends of the standards with a saber saw and file, following the full size pattern. Spread glue in the rabbet of the left subassembly and clamp the two subassemblies together (See **Figure 5**). Allow the glue to dry, checking to see that

the angle between the two sides remains at exactly 90°. After the glue dries you may need to blend the shaping at the top of the rear standards.

Cutting the Shelves

By now you can plane the shelf panel and rip it to width. Once again, make sure the panel edges are parallel. Now cut out the full size pattern of the shelf and make a hardboard template. Trace the shelf profile onto the panel, alternating the direction as you go to fit in all four shelves (see the full size pattern). Leave at least 1/2" between each layout. Now separate the shelves by cutting between the layout lines with a saber saw.

Once the four shelves are roughly separated they're easier to handle on the table saw. Turn your miter gauge to its 45° setting and make some sample cuts to see how accurate the set-up is. The corner created by the two cuts on your sample should be dead square. Fine tune the miter gauge to achieve a perfect test cut, then trim the edges of each shelf to the layout lines.

Sand the shelf surfaces, then slip the shelves into the dadoes in the standards. Extend the pilot holes from the standards into the shelves, then mark each shelf where it passes out of the front standards, as shown in the **draw-**

ing below. Align the template with each set of marks and trace the front edge pattern onto the shelves. Cut the shelves to shape with a saber saw and a fine toothed blade, as shown in **Figure 6**, then sand all the edges with a palm sander. Avoid rounding over the side edges to maintain crisp corners in the dado joints.

Spread glue in the dadoes in the standards and slip the shelves into place. Drive a screw (pieces 7) into each pilot hole and cover the screw heads by gluing plugs (pieces 8) into all the counterbores.

Wrapping Up

Sand the project with 120 and 180 grit paper and wipe it with mineral spirits to expose any hidden dried glue spots. Ease all the sharp edges and blend the joint areas into smooth transitions. Now stain your baker's shelf and apply a coat of sanding sealer and two coats of varnish. Be sure to sand lightly between topcoats with 400 grit wet or dry paper.

Whether you need a rack for cooling your breads and pies, or just want to show off your favorite country collectibles, setting aside a weekend to build this baker's shelf will be time well spent. Best of all, it'll be a great weekend in the shop. ■

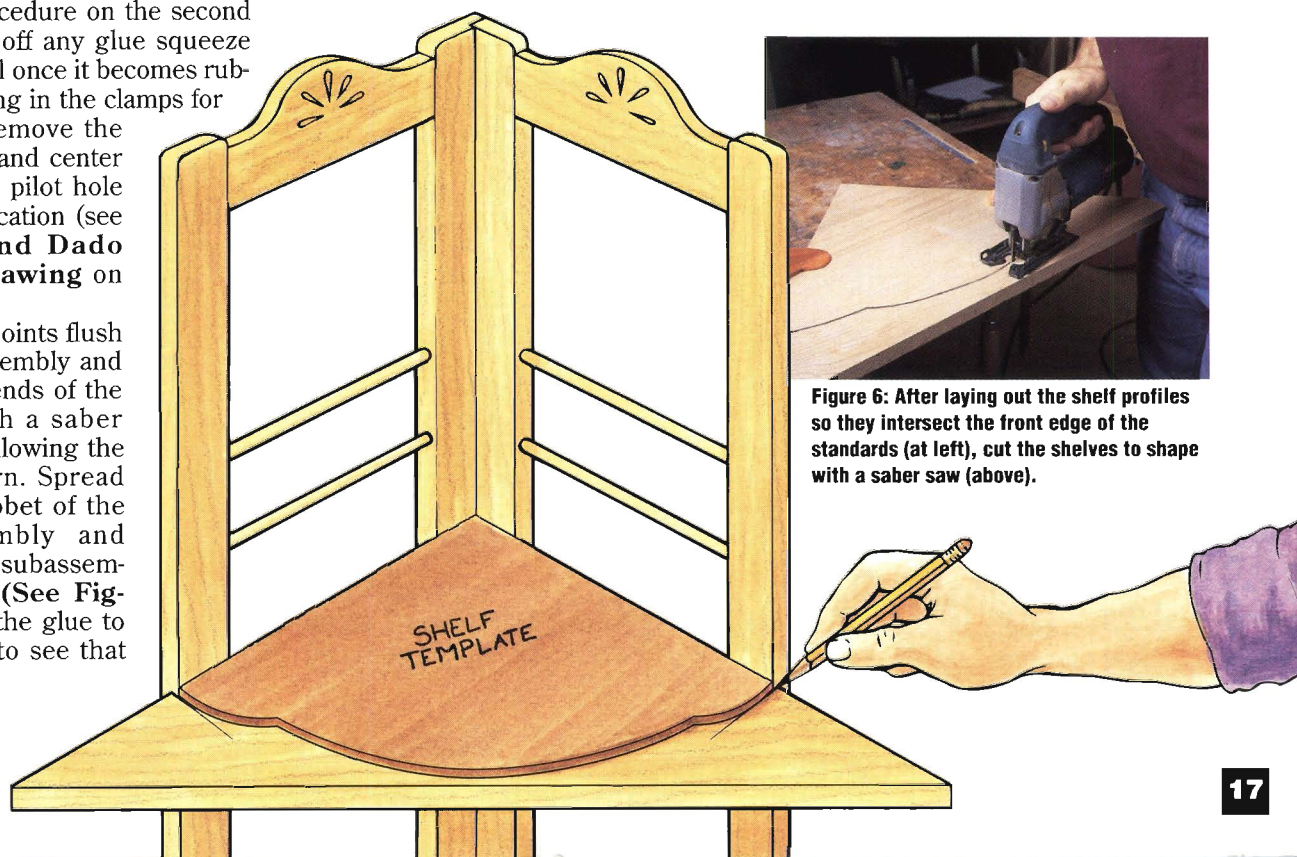


Figure 6: After laying out the shelf profiles so they intersect the front edge of the standards (at left), cut the shelves to shape with a saber saw (above).

An Elegant Entertainment Center

Picture this beautiful mahogany and smoked glass cabinet in your living room. It can hold a large television, a stereo system and all your tapes and records —without overpowering the room.

By Rick White

Designing entertainment centers can be a tricky business. Fortunately, I made one a couple of years ago (see back cover) that brought in lots of mail. Most of it was favorable, but I must admit, there were quite a few requests for a different design. Generally, it seemed that everyone wanted room for their large televisions, stereo systems and plenty of tapes and records, but wanted them all to fit in a more compact space.

With a stack of these letters in hand, I sat down with the Today's Woodworker staff to design a new cabinet. After a great deal of wrangling we agreed on a set of drawings that eventually led to the cabinet shown below. We decided to go with basic European style cabinet construction and chose mahogany for its dramatic reddish-brown color. To add even more drama to the project we covered the center door panels with mahogany crotch veneer and used smoked glass in the side doors. By the way, this was my first try at veneering, which should comfort those of you who might be concerned about this part of the project. For a simple veneer press plan, read Tom Caspar's article on page 6.

Using flipper door slides on the center doors allows for a full view of the television, and tape holders (see the hardware kit on page 20) help to keep the cabinet uncluttered. A set of unique adjustable pull out trays, described on page 5, makes it easy to get to the tapes. As always, I recommend ordering your hardware before cutting any wood. For your convenience, all the elevation drawings for the entertainment center are on the new **Pinup Shop Drawings and Patterns** between pages 12 and 13. Unfold the sheet and thumbtack it to your workshop wall for a handy reference as you work on this project.

Smaller in scale than Rick's first effort (see this issue's back cover), this entertainment center can still handle a full array of electronic gear with no problem.



Planning Ahead: The Entertainment Center Project

Completing this full scale project will require a well outfitted shop. You'll need a table saw, drill press, router, band saw or saber saw, a router table and a variety of bits. Set aside at least 50 hours to build and finish your cabinet.

- 3 sheets of 3/4" mahogany plywood
- Two sheets of 1/4" mahogany plywood
- 24 bd. ft. of 3/4" mahogany
- 5 sq. ft. of mahogany crotch veneer
- 5 sq. ft. of plain-sawn mahogany veneer



Figure 1: Begin and end your drop cuts when the layout lines on your stock reach the marks drawn on the fence that outline the bit's cutting area.

Building the Carcase

If your shop is small like mine, the first order of business has to be cutting the plywood into manageable pieces. Cut panels a little oversize for the sides, dividers and bottom (pieces 1, 2 and 3), then rip 1/4" thick bandings (pieces 4) and glue them to the front edge of each panel. After the glue dries, cut the panels to final size.

Next, following the **panel elevations** on the Pinup Shop Drawings insert, layout the dadoes and rabbets. Make the cuts with a dado blade, and be sure you get a snug fit with a piece of scrap plywood.

Cut solid stock for the top frame (pieces 5 and 6) and layout the stile mortises, as shown in the **top frame**

elevation. Install a 1/4" straight bit in your router table and adjust the fence to center the stock over the bit, then make a number of shallow drop cuts to rout the 1 1/8" deep mortises (See **Figure 1**).

To cut the 1" long rail tenons, install a 1/2" dado blade in your table saw and clamp a set-up block to the fence (See **Figure 2**). Raise the blade 1/4" and cut a tenon on some scrapwood. You'll have a perfect fit when you're able to slip the tenon into a mortise while it's wrapped with a piece of paper (See **Figure 3**). Refine your set up, then cut the tenon cheeks and edges on your rails. Since the ends of the mortises are round, use a rasp to shape the tenon edges

to match (See **Figure 4**), then glue the top frame together.

Now you're ready to assemble the carcase. I recommend getting help to hold the panels steady while you drill and screw it all together. Start by holding the bottom panel on its front edge and slip the dividers into the dadoes. Be sure all the banded edges face the front. Drill countersunk pilot holes into the joints, then spread glue in the dadoes and drive the screws (pieces 7). Follow the same procedure with the sides, only this time drill counterbored pilot holes and cover the screws with wood plugs (pieces 8). You can make your own mahogany plugs with a 3/8" plug cutter (See **Figure 5**). Join the panels, then turn the

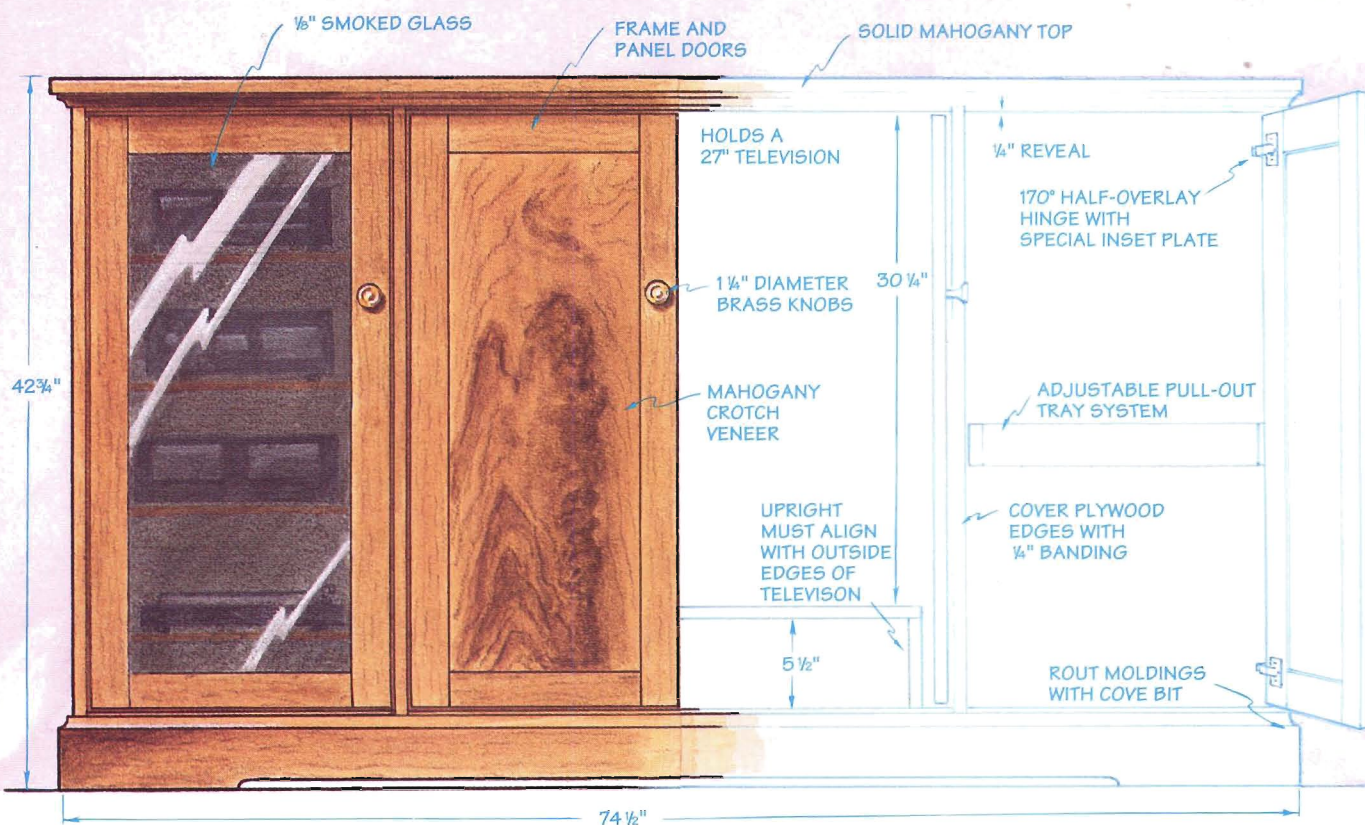




Figure 2: Cut the tenon cheeks and edges with a 1/2" dado blade raised 1/4", a set-up block clamped to the fence and your miter gauge.



Figure 3: To judge the fit of a mortise and tenon joint, wrap the tenon with a slip of paper and see if it slides into the mortise with only slight resistance.

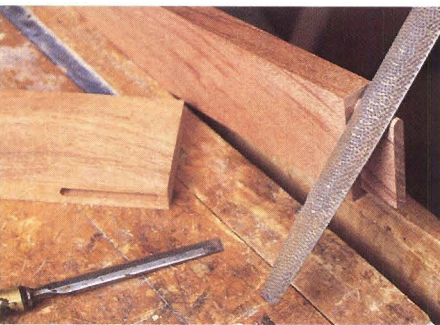


Figure 4: Use a cabinetmaker's rasp to roundover the tenon edges on the top frame rails for a snug fit in the routed mortises.

carcase upright and position the top frame. Square the dividers to the bottom, drill countersunk pilot holes for joining the frame to the sides and dividers, and drive the screws.

Adding the Moldings and Top

Glue three well matched boards edge to edge for the top (piece 9), using dowels or biscuits if you want help keeping the boards aligned. Leave the top in the clamps overnight, then plane and sand both sides smooth. Before screwing the top to the carcase, cut 1/4" spacers (pieces 10) and pin them with brads to the top frame. The spacers elevate the top so you end up with a small step, or reveal, below the cornice moldings. Now rout elongated holes in the front stile

and all four rails, drill fixed holes in the back stile, as shown in the **top frame elevation**, and install the top.

When a project calls for narrow moldings like this one does, I always rout the edges of wider stock first, then rip the edges off to make the moldings. This is much safer than trying to rout strips after they've been ripped to size. For the cornice moldings (pieces 11 and 12), joint the edges of a long board and rout them with a 1/2" radius cove bit. Next, rip the edges off the board and miter them to length for your cabinet. Install the moldings with glue and small brads.

To make the baseboards (pieces 13 and 14), rip stock to width and rout the top edge of each piece with the cove bit, then miter the three pieces to length. Cut out the **full size pattern** of the front baseboard and trace it onto your stock. Bandsaw this profile and sand the edge, then glue and nail the baseboards to

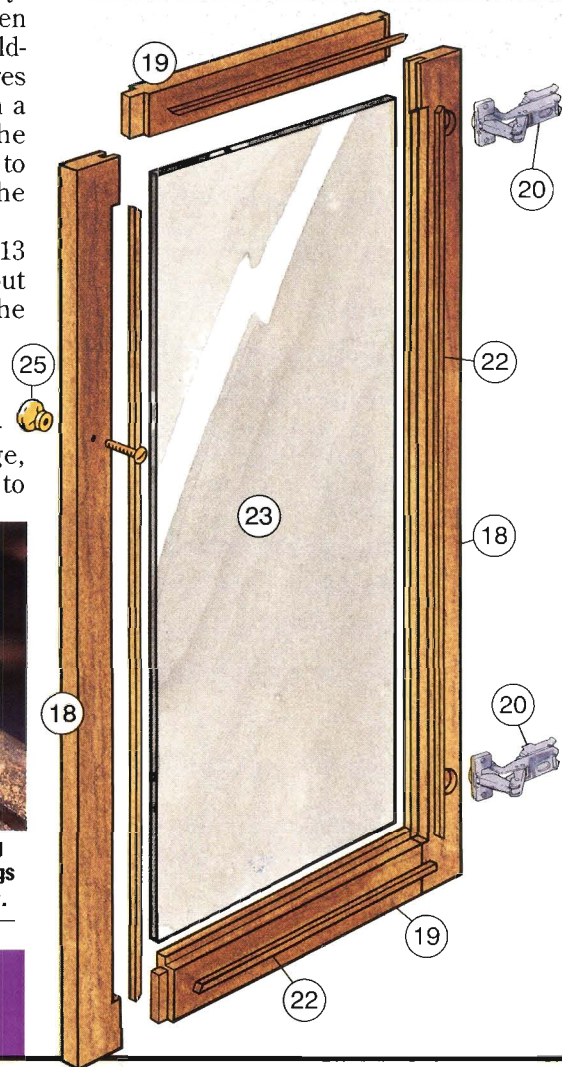
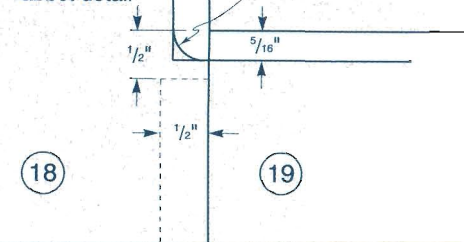


Figure 5: Make your own mahogany plugs using a 3/8" plug cutter. Try to pick wood for the plugs that matches the grain and color of the project.

Side Door Elevation

Tenon and rabbet detail

Rout after assembly, then square corners with a chisel.



Entertainment Center II Hardware Kit

A hardware kit is available for this project that includes shelf standards and supports, half-overlay hinges, inset plates, flipper door slides, Accuride full extension drawer slides and brass knobs.

Kit (use order form):

Item #57653\$149.95

Audio Cassette Holder:

Item #30510\$3.95

Video Cassette Holder:

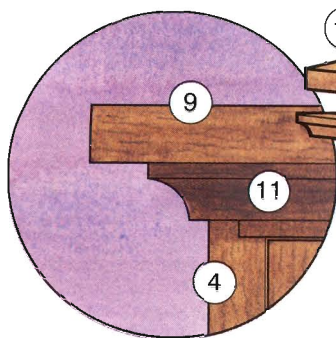
Item #30528\$3.95

Compact Disc Holder:

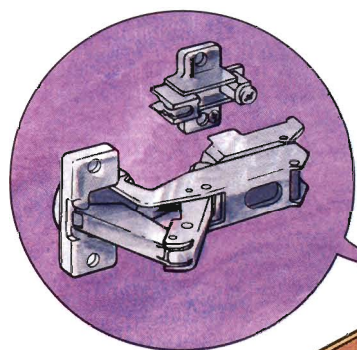
Item #30536\$3.95

MATERIAL LIST

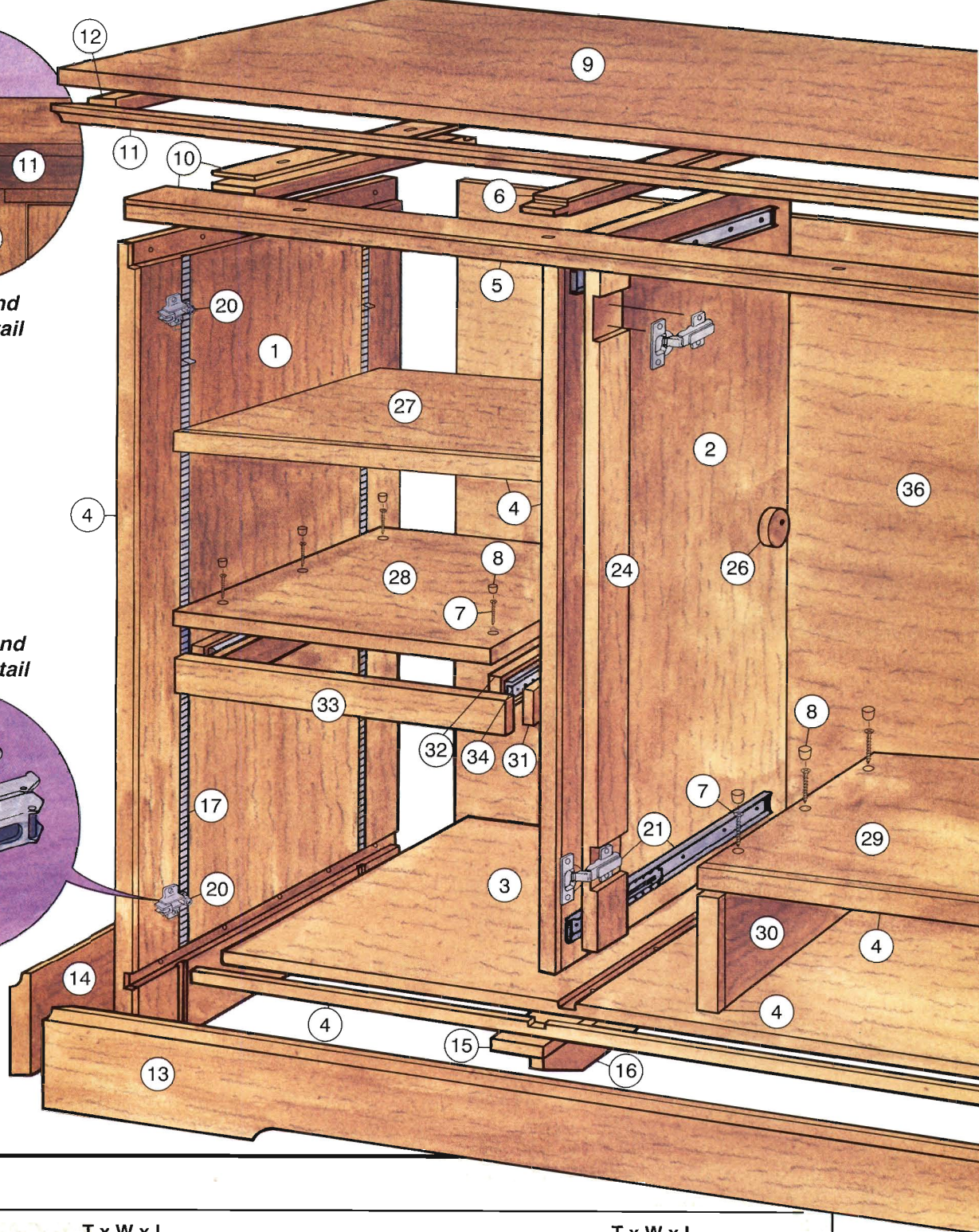
	T x W x L
1 Sides (2)	3/4" x 21 3/4" x 42"
2 Dividers (2)	3/4" x 21 1/2" x 36 3/4"
3 Bottom (1)	3/4" x 21 1/2" x 71"
4 Banding (7)	1/4" x 3/4" x 8'
5 Top Frame Stiles (2)	3/4" x 2 7/8" x 71"
6 Top Frame Rails (4)	3/4" x 2 7/8" x 18"
7 Screws (70)	#8-1 1/2"
8 Plugs (34)	3/8" diameter
9 Top (1)	3/4" x 23 3/4" x 74 1/2"
10 Spacers (3)	1/4" x 2 7/8" x 72"
11 Front Cornice Molding (1)	3/4" x 3/4" x 75"
12 Side Cornice Moldings (2)	3/4" x 3/4" x 24"



Cornice and Reveal Detail



Blum Hinge and Inset Plate Detail



T x W x L

13 Front Baseboard (1)	3/4" x 4 1/2" x 75"
14 Side Baseboards (2)	3/4" x 4 1/2" x 24"
15 Feet (2)	3/4" x 3" x 21"
16 Legs (2)	3/4" x 3" x 21"
17 Shelf Standards (8)	3/16" x 5/8" x 36"
18 Side Door Stiles (4)	3/4" x 2 1/4" x 36 3/4"
19 Side Door Rails (4)	3/4" x 2 1/4" x 14 1/2"
20 Door Hinges (2 pair)	1/2" overlay with inset plate
21 Flipper Slides (2 pair)	20" slides with hinges
22 Retaining Strips (3)	1/4" x 1/4" x 8"
23 Glass (2)	1/8" x 14 1/8" x 32 5/8"
24 Follower Strips (2)	3/4" x 2 1/4" x 36"

T x W x L

25 Knobs (4)	1 1/4" dia. brass
26 Door Stops (2)	3/4" x 2" diameter
27 Shelves (5)	3/4" x 20 1/2" x 17 1/8"
28 Tray Tops (2)	3/4" x 16 5/8" x 20"
29 TV Stand Top (1)	3/4" x 20 1/2" x 29"
30 TV Stand Uprights (2)	3/4" x 5 1/2" x 20 1/2"
31 Brackets (4)	3/4" x 2 5/8" x 20 3/4"
32 Tray Rails (4)	3/4" x 1 7/8" x 20"
33 Tray Fronts (2)	3/4" x 2 5/8" x 16 5/8"
34 Tray Slides (2 pair)	18" Accuride full extension
35 Holders (3)	Video, audio and CD
36 Back (1)	1/4" x 41 3/4" x 71"

Without extra support, the weight of the TV and stereo could cause the bottom panel to sag. To prevent this from happening, make two support assemblies (pieces 15 and 16) to screw underneath the cabinet. Cut the pieces to size and trim the front end of the legs at a 45° angle, as shown in the carcase elevation. Screw the supports together, then screw them to the bottom panel below each divider. Now cut the shelf standards (pieces 17) to length with a hack saw and nail them into the dadoes in the cabinet.

Cut stock for the door stiles and rails (pieces 18, 19, 37 and 38), and layout the joints, as shown in the **door elevations**. Form these joints like you did earlier when making the top frame, only this time rout the mortises and grooves with a 5/16" straight bit to accommodate the veneered panels. Remember to make shallow passes to minimize the stress on the bit.

3/8" deep x 5/16" wide rabbets around the back of each opening for holding the glass. Square the rabbet corners with a chisel.

If you don't already have a veneer press I recommend building the one Tom Caspar describes on page 6. Once you've completed the press, cut 1/4" plywood for the substrates (pieces 39) and prepare the crotch veneer (pieces 40). I applied *Nordy's Veneer Treatment* (a glue based solution available from The Woodworkers' Store) to make the veneer flatter and easier to work. You do not have to treat the veneer for the back of the panel (pieces 41).

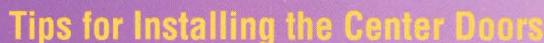
Glue the veneer to the substrate following Tom's directions on page 7, and later, after the glue dries, sand the surfaces smooth. Be careful sanding near the edges or you may go right through the veneer. Glue up the center doors after a dry run to check the fit of all the parts.

Now use a drill press to bore the $\frac{1}{8}$ " diameter holes in the door stiles for the European style hinges and flipper door system (pieces 20 and 21), as shown in the **door elevations**. In addition, drill pilot holes in the cabinet sides for the side door inset mounting

plates. After completing the drilling, rip retaining strips (pieces 22) for holding the glass in the doors and miter them to length. Have a local supplier cut the smoked glass (pieces 23) for your side doors.

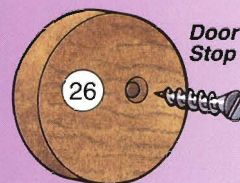
The flipper door hardware requires a few homemade pieces, the most important of which are the follower strips (pieces 24). Cut the strips to size and plough the dadoes as described in the box below, then screw them to the slides. Mount the door knobs (pieces 25), then make the stops (pieces 26) shown below and install them so they contact the follower strips before the knobs hit the dividers. You can fine tune the stops by turning them on their off center pivot points.

Cut plywood to size for the shelves, pullout tray tops and the television stand (pieces 27 through 30). **Note:** Be sure to alter the stand's construction so that the uprights align with the outside edge of your television. Glue banding to the front edge of the shelves and television stand pieces, then assemble the stand with screws and plugs, as shown in the exploded view on page 21.



Follower strips (left) provide the mounting platform for the hinges and slides, and support the doors throughout their travel. Cut the dadoes in the strips exactly 3/8" deep as this will affect the fit of the doors and their swing around the pivot rollers (lower right). For all other installation requirements, refer to the instructions that come with the hardware.

Screwing stops (above right) to the dividers will end the door's travel before the door knobs hit the front face of the cabinet. Drilling the pilot holes off center gives the stops a wide range of adjustability.



Pivot Roller



MATERIAL LIST (Center Doors)

	T x W x L
37 Center Door Stiles (4)	3/4" x 2 1/4" x 36 3/8"
38 Center Door Rails (4)	3/4" x 2 1/4" x 13"
39 Substrates (2)	1/4" x 13" x 33"
40 Face Veneer (2)	1/32" x 14" x 34"
41 Back Veneer (2)	1/32" x 14" x 34"

Mahogany Crotch Veneer

By Gordon Hanson

Now cut the remaining pieces for the trays, which includes the brackets, tray rails and tray fronts (pieces 31, 32 and 33). Cut 3/16" deep notches in the brackets, as described on page 5, then screw and plug the tray tops to the rails just as you did with the television stand. Glue the fronts to the tray tops and secure the tray slides (pieces 34) to the brackets and rails.

The holders (pieces 35) for storing video tapes, cassette tapes and compact discs, have their own adhesive tape. All you have to do is peel off the protective cover and press them into place—but not until after you've completed the finishing. Wrap up by cutting the back (piece 36) to size and mounting it to the cabinet with #4-1/2" screws.

Finishing and Final Installation

To stain and finish the entertainment center, take off all the hardware and remove the back, and set the project in a dust free room—you may have to settle for cleaning up your shop like I did. I colored the cabinet using Bartley's Brown Mahogany stain and topcoated the stain with sanding sealer and varnish. Two coats of varnish is plenty for normal use. Put the stain on with a rag or brush and wipe it off after a few minutes. Be sure to keep your eye out for glue spots, and remove them with a sharp chisel. Bartley stains are very forgiving—you can stain the exposed spots right away and they will blend in. Sand between each topcoat with 400 grit wet or dry paper.

Remount the doors and hardware after allowing the final coat of varnish to dry for a couple of days. When you decide how you want your stereo equipment arranged, drill access holes in the cabinet dividers and cut notches in the shelves for passing wires from one component to another. I found that 1 1/2" holes work well. Following the drilling, reinstall the back panel and press your holders into place.

This new entertainment center satisfies a different set of requirements from the one I built before. It takes up less space on a family room floor, it's more classically inspired and the construction is less complicated. Of course, the proof is in the pudding, and I'm anxious to read the next batch of letters to find out what you think. ■

According to legend, pirates of the high seas buried their treasures on Caribbean islands. What they couldn't know, however, was that another treasure lay hidden right in front of their noses. Had they anticipated its value to the woodworking trades they surely would have added the small amount of beautifully figured wood hidden deep in the crotch of the mahogany trees to their ill-gotten booty.

Mahogany, although not the only tree that produces a desirable crotch grain pattern, offers some of the most spectacular results. Nearly all harvested crotch wood is sliced into exceptionally thin veneer in order to stretch the rare material to its absolute limits. While each specimen is unique, names like plume, flame, feather and rooster tail generally apply to this kind of grain pattern.

Crotch veneer is cut perpendicular to the V created by the spreading branches in the log, as shown in the drawing above. Each slice has a wild grain pattern going in all directions, much like burl veneer does. Of course, this usually means that no matter how you glue it to a core material, eventually the veneer will crack and split.

Working with crotch veneer requires a little more effort than plain-sliced or quartersawn veneers. Due to its irregular grain patterns, crotch veneer is often wrinkly, making it necessary to flatten the veneer prior to gluing. Homemade treatments can be mixed, or you can go easy on yourself by just buying an off the shelf product. Generally speaking, you brush the treatment on

the veneer, then clamp it between sheets of fiberglass mesh screen, newspaper and plywood. After a couple of days you can remove the veneer and glue it to your core material—but don't wait too long or the veneer may distort once again.

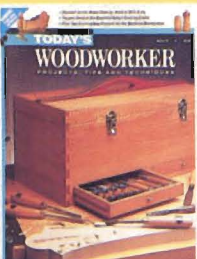
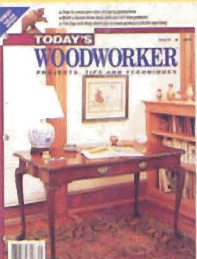
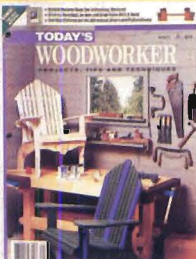
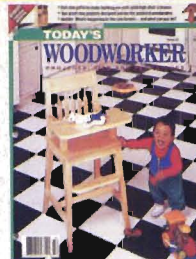
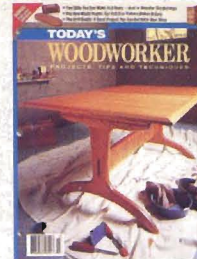
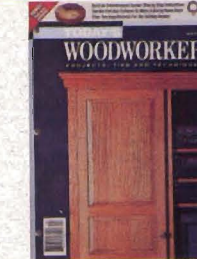
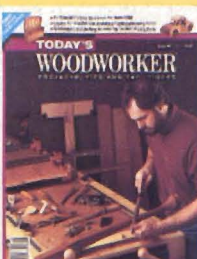
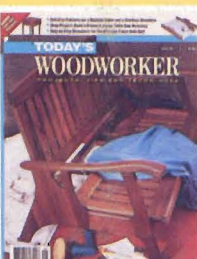
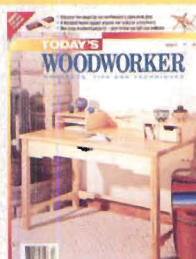
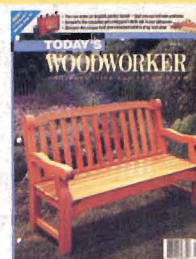
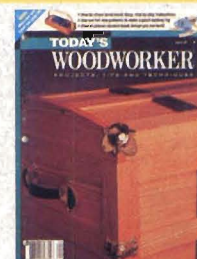
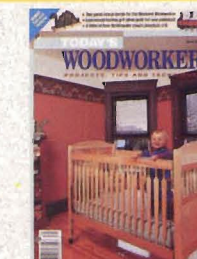
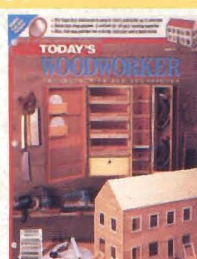
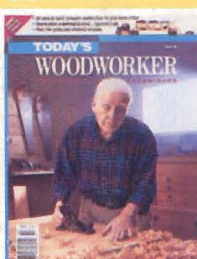
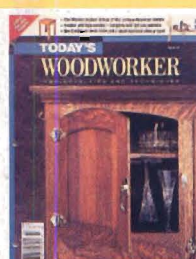
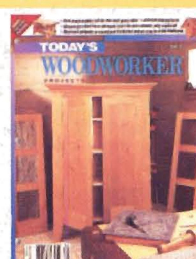
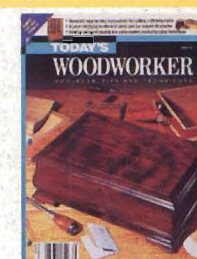
Special handling is required when smoothing and finishing crotch veneer. Planing is pretty well eliminated on such wild grain, so you'll need to rely on scraping and sanding instead. Since

crotch veneer has random areas of exposed end grain that absorb stains and finishes unevenly, you may want to apply a wash coat of shellac to guarantee a uniformly colored surface.

Mahogany crotch veneer is relatively expensive. For example, a square foot of plain sliced veneer costs about \$1.00, whereas crotch mahogany sells for around \$5.00 per square foot. When you have the right application, however, its stunning beauty is well worth the extra cost.



FREE binder when you order six back issues or more!

19  Craftsman's toolbox, a swinging cradle, turned salt and pepper shakers and a simple bookcase. Item 79582\$3.95	20  A Queen Anne desk with cabriole legs, carved grizzly bear and a table lamp. Item 79665\$3.95	21  Adirondack Chair, easy to make deck set, scroll saw project and a sofa table. Item 79673\$3.95	22  Classic tavern mirror, a high chair for the ages, display case and a weekend bird feeder. Item 79681\$3.95	23  Contemporary dining room table, drill bit cabinet and three weekend gift projects. Item 79699\$3.95	24  Entertainment center, dining chair (for table in issue 23), serving tray and tree ornaments. Item 79707\$3.95
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Designs For Your Viewing Pleasure

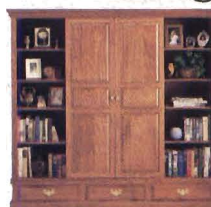
Here's two more great plans and kits for your family room. Pick the entertainment center that suits your style and taste.



COUNTRY TV CABINET

Includes wrought iron hinges and knobs, magnetic catches, casters and Blum drawer slides.

Item #58727 (Hardware kit)\$39.95
Item #72161 (Issue 17).....\$3.95

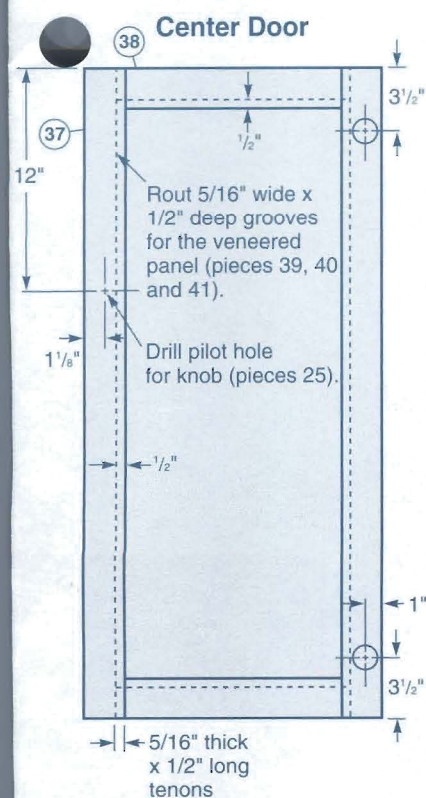
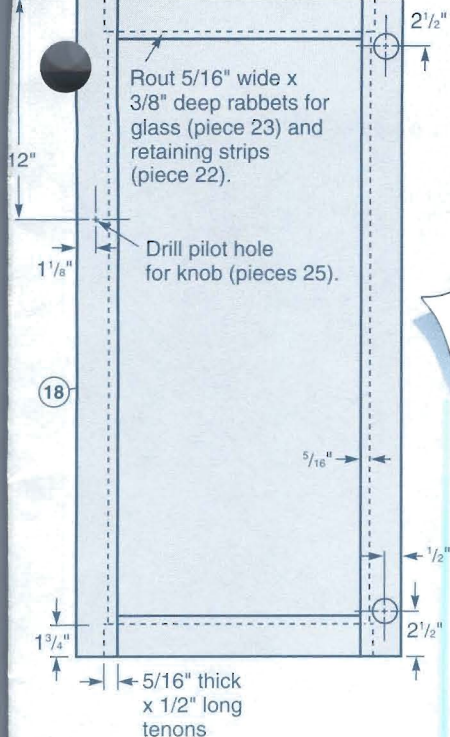


ENTERTAINMENT CENTER I

Includes sliding door hardware, 5 Accuride slides, drawer pulls and door knobs, shelf hardware and leveler glides. A 35mm bit is required (available separately).

Item #58735 (Hardware kit)\$159.95
Item #23770 (35mm carbide bit)\$19.95
Item #79707 (Issue 24)\$3.95

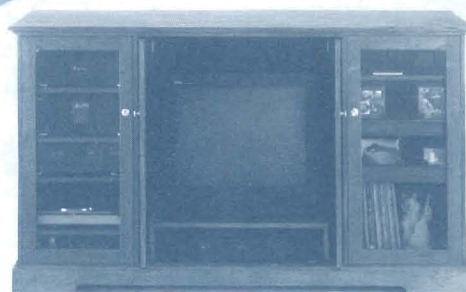




**PINUP
SHOP
DRAWINGS**

Full-Size Patterns

- Open staples carefully, remove pattern and fold staples back in place.
- Use graphite paper (available at most art supply stores) or cut and trace the pattern onto your stock.
- Cut out the elevation drawings and pin them to your shop wall.



An Elegant Entertainment Center

Includes patterns for the front baseboard, the cornice molding and the door stops, plus detailed elevation drawings.

Baker's Shelf

You'll find patterns for the shelves, rails (with carving details) and standards.



Big Timber Logging Truck

Includes the cab, engine, fenders, truck base, running lights, bumper, grill, gas tanks, smokestacks, trailer base, trailer bed, rails and staves.

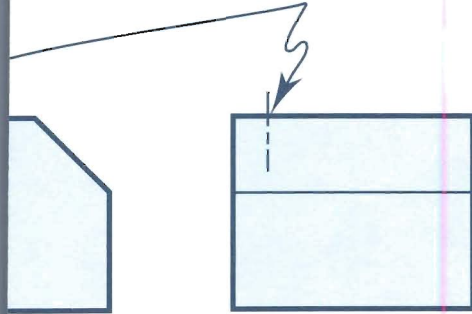


**TODAY'S
WOODWORKER®**

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Drill 7/32" diameter holes for the radiator cap (piece 7).

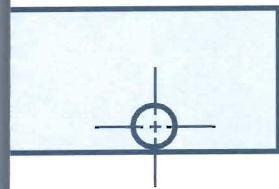


Side View



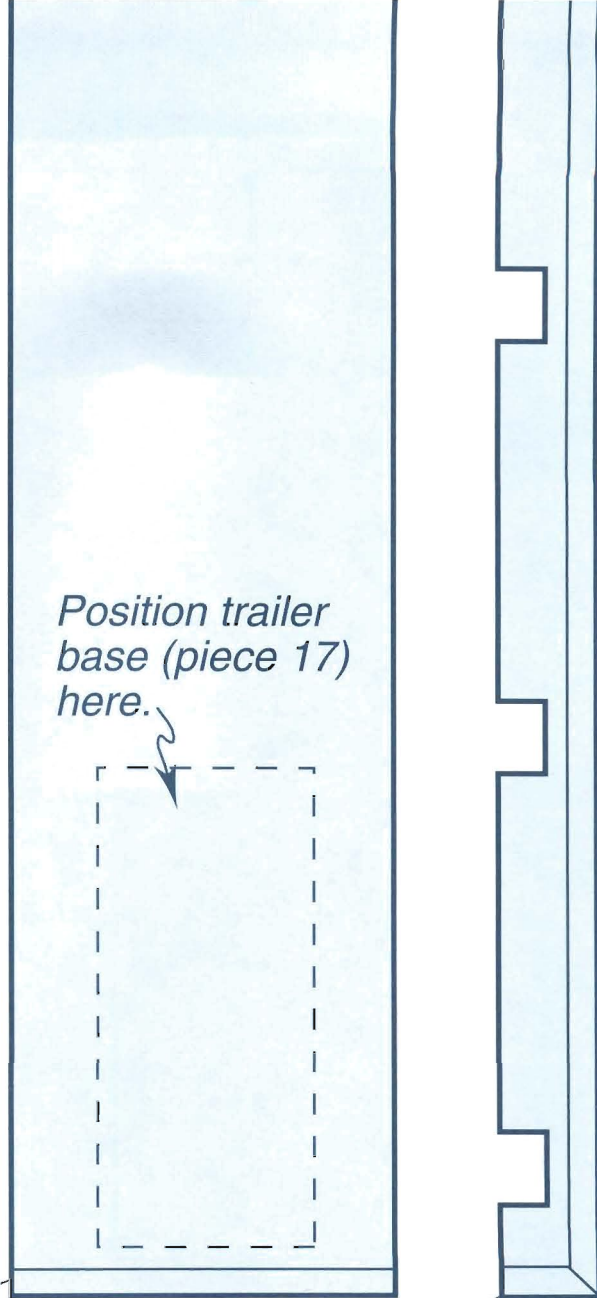
Trailer Base

Side View



Drill 7/32" holes for the axles.

Chamfer



Chamfer

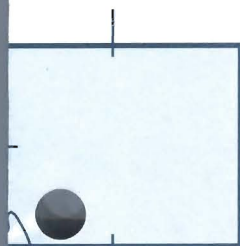
Door Elevations

(19)

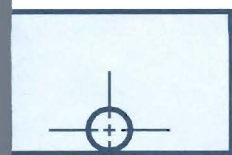
Side Door

then sand
line.

ng

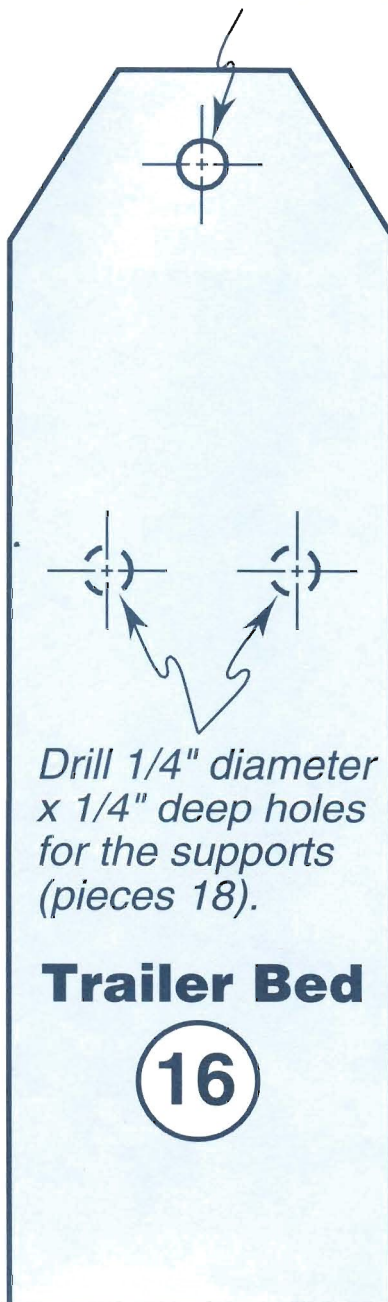


1/4" diameter x 3/8"
hole for hitch (piece 11).
r x 3/8" deep hole
tack (piece 10).



pieces 5).

Drill a 1/4" hole for
the hitch (piece 8), then
enlarge the hole a little
with a rat-tail file.



Drill 1/4" diameter
x 1/4" deep holes
for the supports
(pieces 18).

Trailer Bed

16

Rail

15



Upper

3

Top View



Front View



Front View

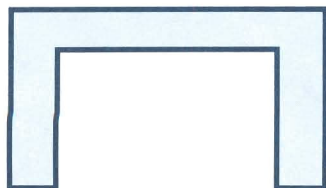


Upper Cab

1

Follow the sequence described on page 11 for shaping the cab.

Side View



Upper Cab

1

per

estack

9

Drill 1/8" hole for upper smokestack.

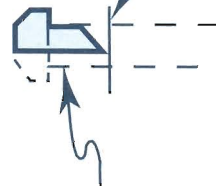
Lower Smokestack

10

Running Light

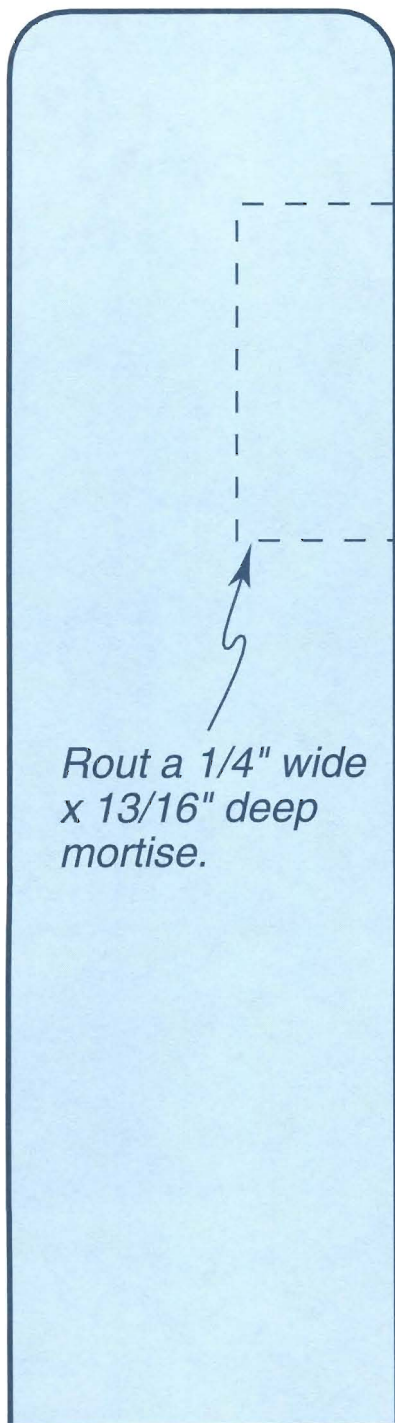
8

Cut axles here.

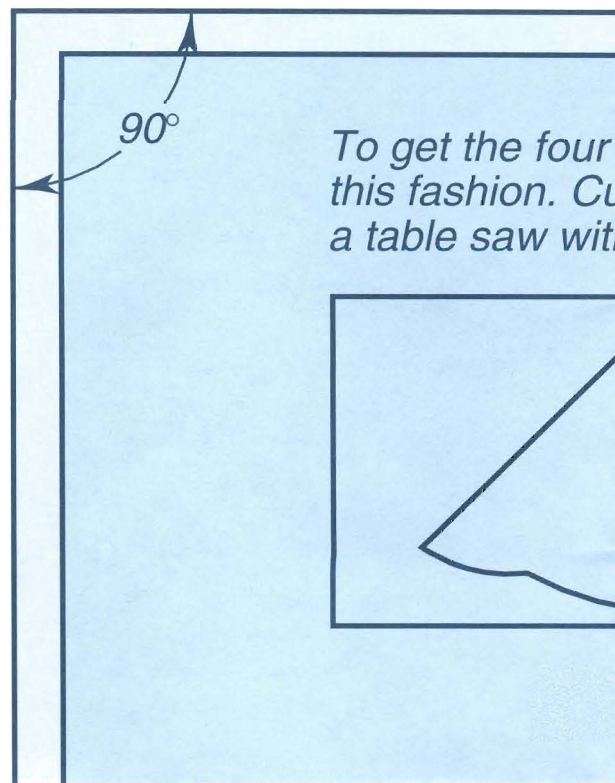
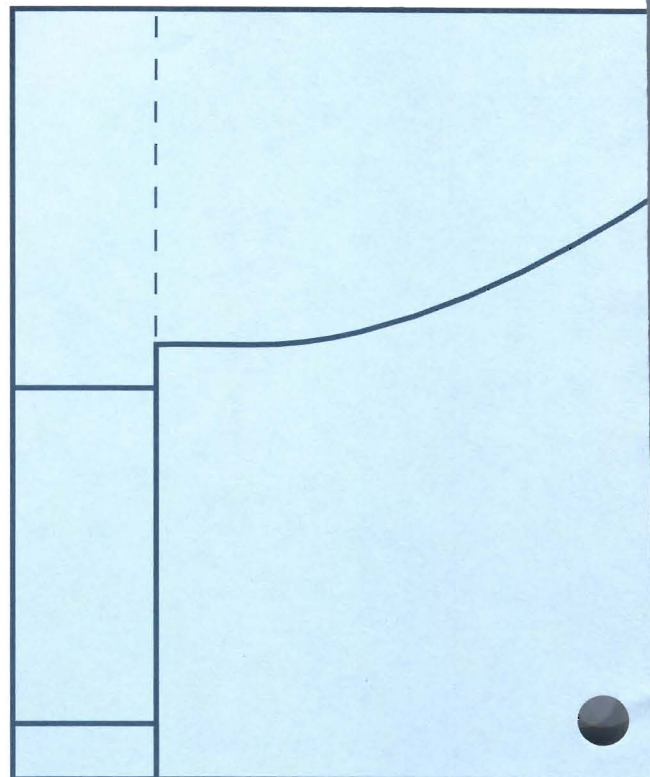


Sand flat for gluing to upper cab (piece 1).

*Roundover both
corners of front
standards and inside
corner of each
rear standard.*



*Rout a 1/4" wide
x 13/16" deep
mortise.*



*To get the four
this fashion. Cu
a table saw with*

Front Standard

2

*Drill counterbored
pilot hole.*



*Trace foot
pattern on front
standards only.*

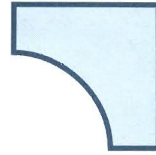
*Cut out the shelf pattern and
the four shelves on your g*

*Trim the shelf pattern h
for tracing the final sha
after they're set into the*

En
Co

Cornice Molding

11



*Rout with a 1/2"
radius cove bit.*

Front Ba

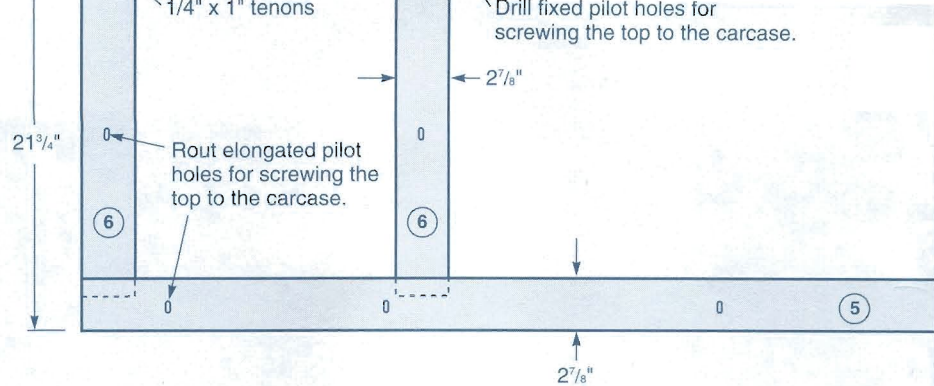
1

Pinup Shop Drawings

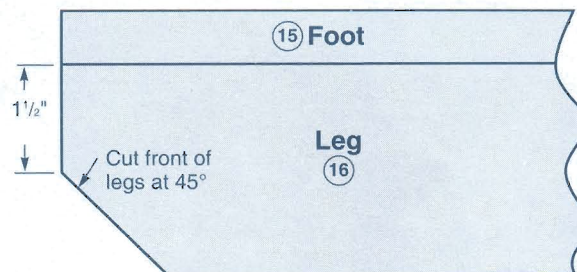
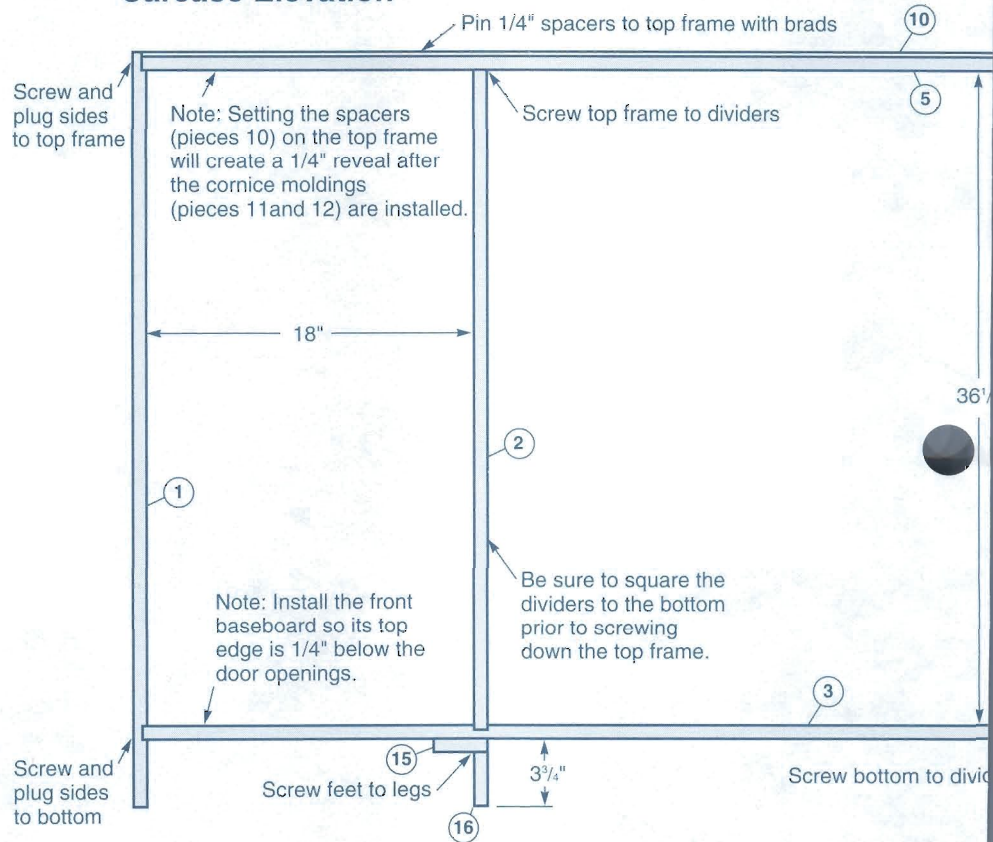
Entertainment Center Issu

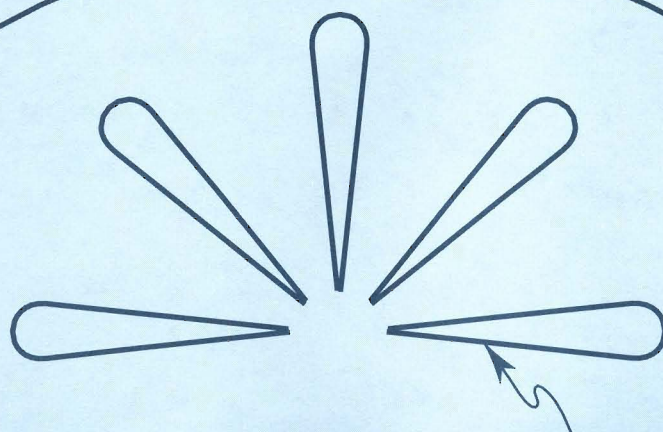
Top Frame Elevation





Carcass Elevation



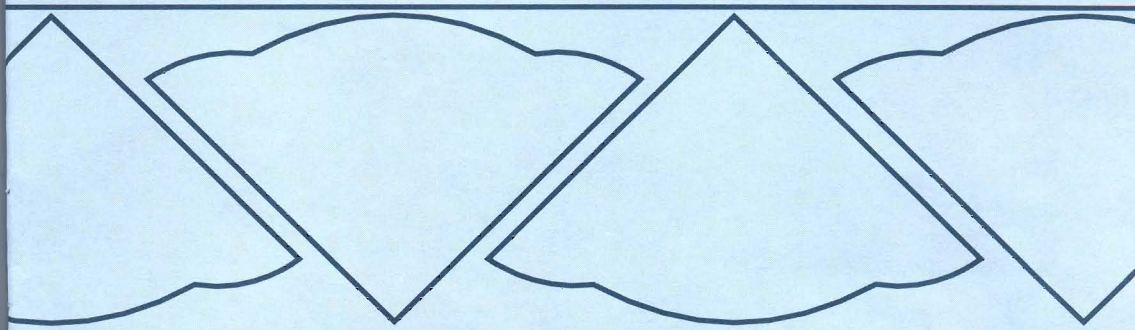


Rail

6

Rout and carve the sunburst patterns prior to bandsawing the rails to shape.

*shelves out of your glued-up panel, lay them out in
t between each shelf with a saber saw, then use
n the miter gauge turned 45° to trim the back edges square.*



Baker's Shelf

1

along this line and layout
glued up panel.

ere to make a template
pe onto the shelves
e standards.

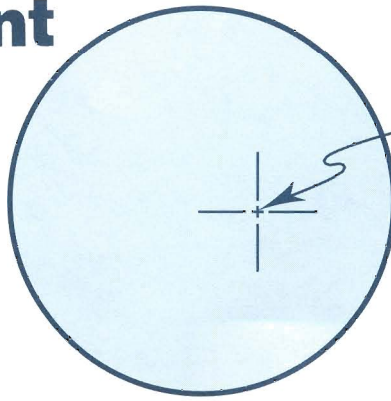
F

S

Door Stop

entertainment center

26

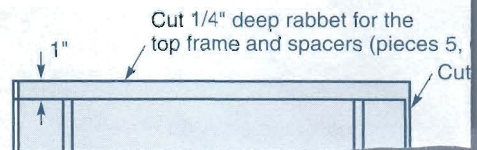
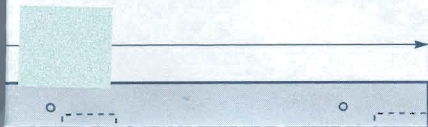


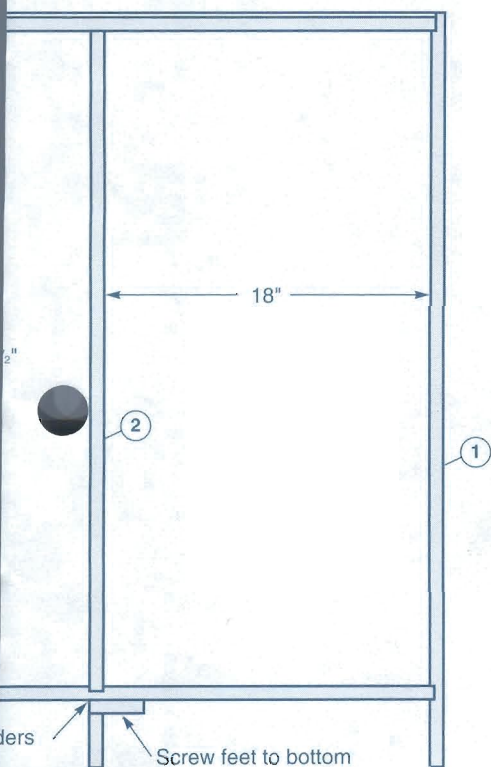
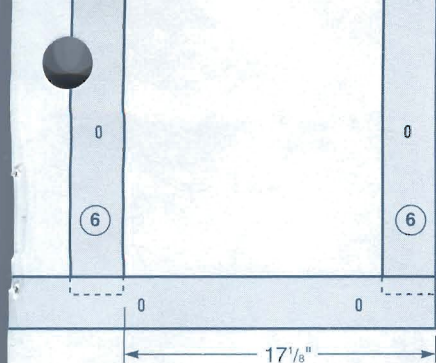
*Drill pilot hole for
hold down screw.*

seboard

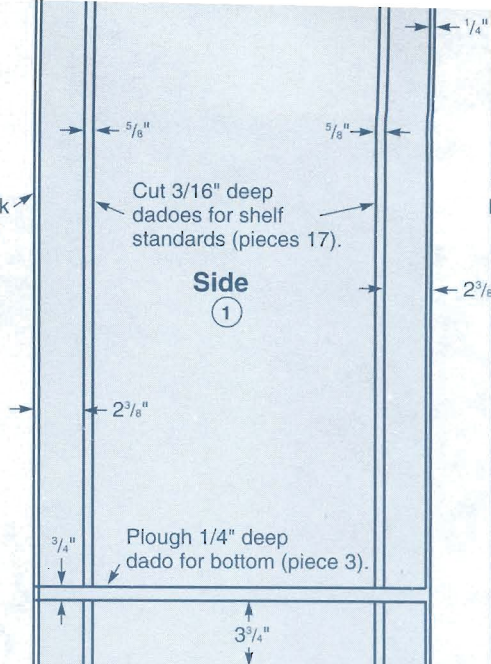
3

e 36 Nov/Dec 94

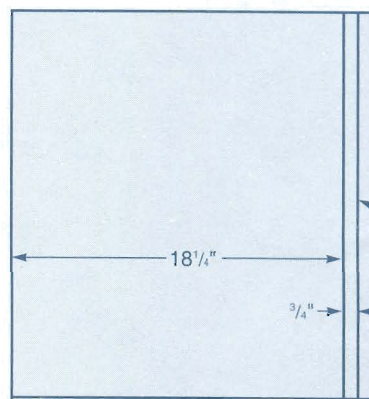




1/4" thick banding

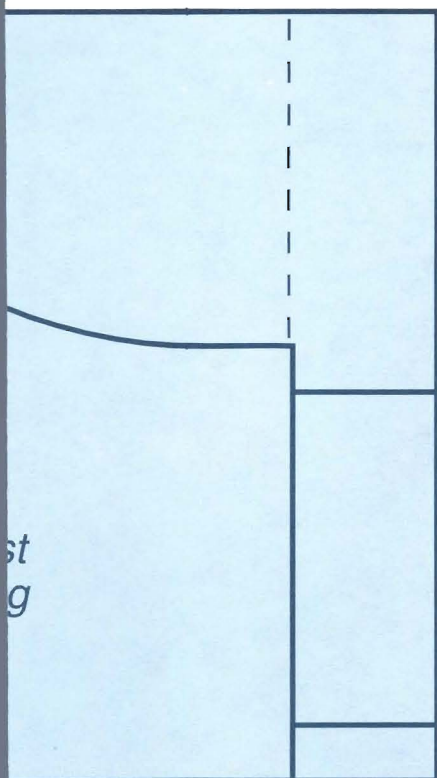


Side



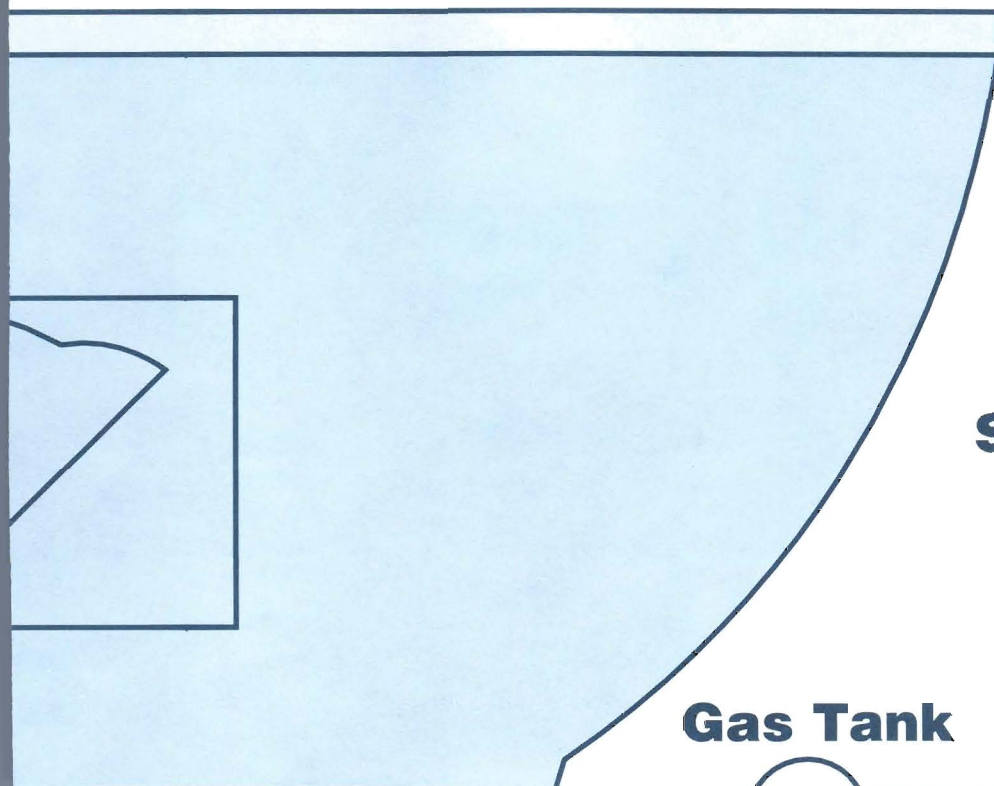
Material List

	T x W x L	
1 Sides (2)	3/4" x 21 3/4" x 42"	15 Feet (2)
2 Dividers (2)	3/4" x 21 1/2" x 36 3/4"	16 Legs (2)
3 Bottom (1)	3/4" x 21 1/2" x 71"	17 Shelf Standards (8)
4 Banding (7)	1/4" x 3/4" x 8'	18 Side Door Stiles (4)
5 Top Frame Stiles (2)	3/4" x 2 7/8" x 71"	19 Side Door Rails (4)
6 Top Frame Rails (4)	3/4" x 2 7/8" x 18"	20 Door Hinges (2 pair)
7 Screws (70)	#8-1 1/2"	21 Flipper Slides (2 pair)
8 Plugs (34)	3/8" diameter	22 Retaining Strips (3)
9 Top (1)	3/4" x 23 1/4" x 74 1/2"	23 Glass (2)
10 Spacers (3)	1/4" x 2 7/8" x 72"	24 Follower Strips (2)
11 Front Cornice Molding (1)	3/4" x 3/4" x 75"	25 Knobs (4)
12 Side Cornice Moldings (2)	3/4" x 3/4" x 24"	26 Door Stops (2)
13 Front Baseboard (1)	3/4" x 4 1/2" x 75"	27 Shelves (5)
14 Side Baseboards (2)	3/4" x 4 1/2" x 24"	28 Tray Tops (2)



Cut top shoulders by hand after bandsawing the top edge to shape.

Cut tenons while rail stock is still square.



Bun

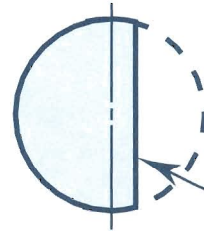
1

**Up
Smoke**

Gas Tank

14

End View



Cut here,
to center

Loggi Truck

Truck Base

Top View

5

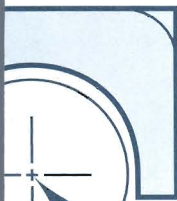
Drill
deep

Drill 1/4" diameter
for lower smokes

ender

12

le View



5

Truck Base

Side View

Drill 7/32" diameter holes for axles (pie

Be sure to center
the fenders on
the axle holes.

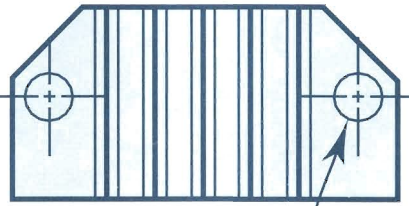
Grill

3

Top View



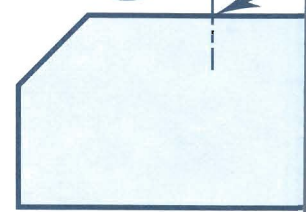
Front View



Drill $7/32$ " diameter holes
for headlights (pieces 6).

Engine

4



Front View

Stave

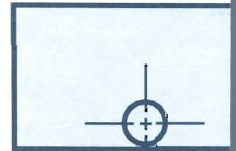
Side View

19



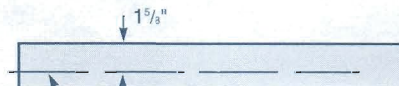
17

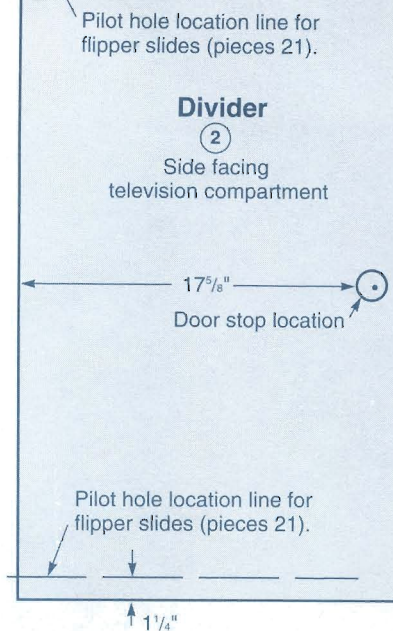
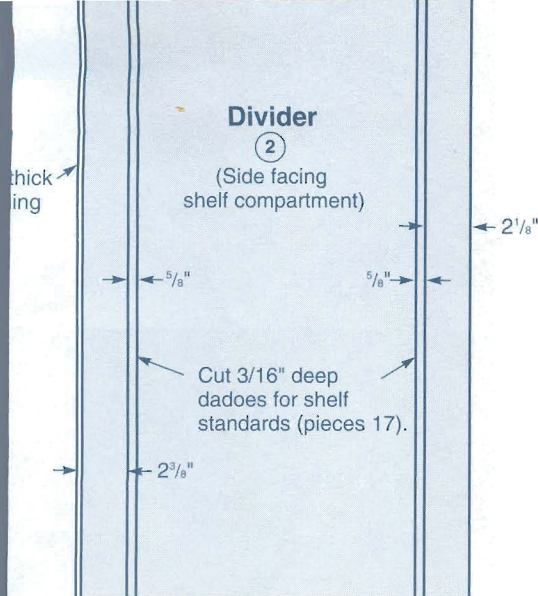
Tra



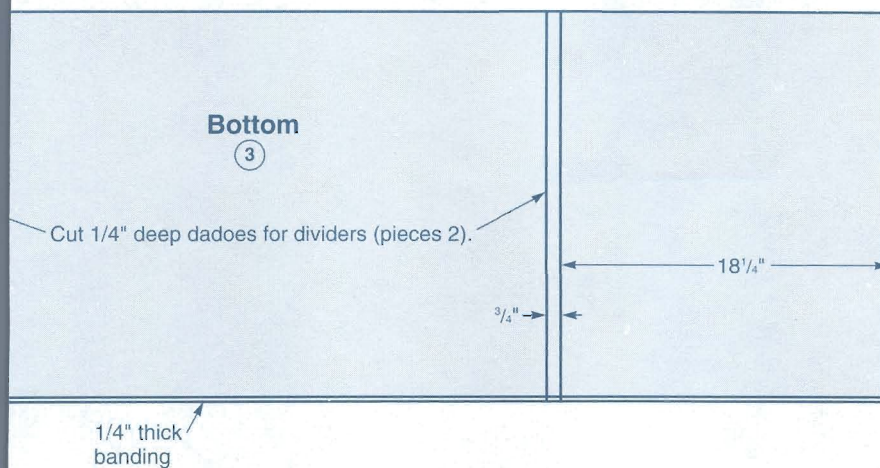
Dr
for

d 10).
deep rabbet for back (piece 36).





Divider and Bottom Panel Elevations



T x W x L

4" x 3" x 21"

4" x 3" x 21"

16" x 5 5/8" x 36"

4" x 2 1/4" x 36 3/8"

4" x 2 1/4" x 14 1/2"

2 overlay with inset plate

0" slides with hinges

4" x 1 1/4" x 8"

8" x 14 1/8" x 32 5/8"

4" x 2 3/4" x 36"

1/4" dia. brass

4" x 2" diameter

4" x 20 1/2" x 17 7/8"

4" x 16 5/16" x 20"

29 TV Stand Top (1)

30 TV Stand Uprights (2)

31 Brackets (4)

32 Tray Rails (4)

33 Tray Fronts (2)

34 Tray Slides (2 pair)

35 Holders (3)

36 Back (1)

37 Center Door Stiles (4)

38 Center Door Rails (4)

39 Substrates (2)

40 Face Veneer (2)

41 Back Veneer (2)

T x W x L

3/4" x 20 1/2" x 29"

3/4" x 5 1/2" x 20 1/2"

3/4" x 2 5/8" x 20 3/4"

3/4" x 1 7/8" x 20"

3/4" x 2 5/8" x 16 5/16"

18" Accuride full extension

Video, audio and CD

1/4" x 41 3/4" x 71"

3/4" x 2 1/4" x 36 3/8"

3/4" x 2 1/4" x 13"

1/4" x 13" x 33"

1/32" x 14" x 34"

1/32" x 14" x 34"