

WOOD

The World's Leading Woodworking Resource

Multi-purpose Outfeed Table

p.24

**Plus Great
Plans**

Icebox Chest p.42

**Jigsaw
Circle Jig** p.14

Toy WWII Jeep
p.48

**Phone/Tablet
Charging
Station** p.30

**Plumb Your
Shop for Air**
p.54





Grizzly Industrial®

PURVEYORS OF FINE MACHINERY®, SINCE 1983!

SUMMER SALE
April 10 – July 10
2017

14" DELUXE BANDSAW

- Motor: 1 HP, 110V/220V, prewired 110V, single-phase, TEFC, 1725 RPM
- Amps: 11A at 110V, 5.5A at 220V
- Table size: 14" x 14" x 1 1/2"
- Table tilt: 10° L, 45° R
- Floor-to-table height: 43"
- Cutting capacity/throat: 13 1/2"
- Max. cutting height: 6"
- Blade size: 93 1/2" (1/8" to 3/4" wide)
- Blade speed: 1800 and 3100 FPM
- Overall size: 27" W x 67 1/2" H x 30" D
- Footprint: 23 1/2" L x 16 1/2" W
- Approx. shipping weight: 246 lbs.



G0555LX ~~\$575⁰⁰~~ **SALE \$525⁰⁰**

17" HEAVY-DUTY BANDSAW 30TH ANNIVERSARY EDITION

- Motor: 2 HP, 110V/220V, single-phase, TEFC, prewired 220V
- RPM: 1725
- Amps: 20A at 110V, 10A at 220V
- Precision-ground cast iron table size: 17" x 17" x 1 1/2"
- Table tilt: 45° R, 10° L
- Floor-to-table height: 37 1/2"
- Cutting capacity/throat: 16 1/4"
- Blade length: 131 1/2" (1/8" to 1" wide)
- Approx. shipping weight: 342 lbs.

MADE IN
AN ISO 9001
FACTORY



G0513ANV ~~\$925⁰⁰~~ **SALE \$875⁰⁰**

10" HYBRID TABLE SAW WITH RIVING KNIFE & IMPROVED FENCE

- Motor: 2 HP, 120V/240V, prewired 120V, single-phase
- Amps: 15A at 120V, 7.5A at 240V
- Precision-ground cast iron table with wings measures: 40 1/2" W x 27" D
- Floor-to-table height: 35 3/4"
- Arbor: 5/8" • Arbor speed: 3450 RPM
- Max. depth of cut: @ 90° 3 3/4", 45° 2 1/4"
- Rip capacity: 31" R, 16 3/4" L
- Overall size: 64" W x 40 1/4" D x 35 1/2" H
- Footprint: 21" L x 19 1/2" W
- Approx. shipping weight: 371 lbs.



FREE
10" X 40"
CARBIDE-
TIPPED
BLADE



G0771Z ~~\$895⁰⁰~~ **SALE \$750⁰⁰**

10" CABINET TABLE SAWS

- Motor: 3 HP, 220V, single-phase, 12.8A
- Precision-ground cast iron table with extension measures: 27" x 40" (G0690), 27" x 74 1/4" (G0691)
- Floor-to-table height: 34"
- Arbor: 5/8" • Arbor speed: 4300 RPM
- Max. dado width: 1 1/8"
- Capacity @ 90°: 3 1/8", @ 45°: 2 3/16"
- Max. rip capacity: 29 1/4" (G0690), 50" (G0691)
- Approx. shipping weight: 530 lbs. (G0690), 557 lbs. (G0691)



WITH RIVING KNIFE
G0690 ~~\$1575⁰⁰~~ **SALE \$1495⁰⁰**

WITH RIVING KNIFE & EXTENSION RAILS
G0691 ~~\$1725⁰⁰~~ **SALE \$1595⁰⁰**

INCLUDES
A 3 HP
LEESON®
MOTOR

6" JOINTER WITH SPIRAL CUTTERHEAD

- Motor: 1.5 HP, 120V/240V, single-phase, 15A/7.5A, prewired 120V
- Max. width of cut: 6" • Max. depth of cut: 1/8"
- Max. rabbeting capacity: 1/2"
- Cutterhead diameter: 2 1/2"
- Cutterhead speed: 4800 RPM
- Table size: 7 1/2" x 46"
- Floor-to-table height: 32 1/2"
- Cuts per minute: 19,200
- Fence size: 5" H x 35" L
- Fence adjustment stops at 45°, 90°, 135°
- Overall size: 46" L x 27 1/2" W x 49" H
- Approx. shipping weight: 268 lbs.



FREE PAIR
OF SAFETY
PUSH
BLOCKS



G0452Z ~~\$865⁰⁰~~ **SALE \$795⁰⁰**

8" JOINTERS

- Motor: 3 HP, 240V, single-phase, TEFC, 3450 RPM, 15A
- Max. depth of cut: 1/8"
- Max. rabbeting capacity: 1/2"
- Precision-ground cast iron table size: 9" x 72 1/2"
- Cutterhead diameter: 3", Speed: 4800
- Cutterhead knives: 4 HSS; 8" x 3/4" x 1/8" (G0656)
- Cuts per minute: 20,000 (G0656), 21,400 (G0656X)
- Deluxe cast iron fence size: 35" L x 5" H
- Approx. shipping weight: 522 lbs.



4 KNIFE CUTTERHEAD
G0656 **ONLY \$895⁰⁰**

SPIRAL CUTTERHEAD
G0656X **ONLY \$1295⁰⁰**



G0656
SHOWN

15" HEAVY-DUTY PLANER

- Motor: 3 HP, 240V, single-phase, 14A
- Max. cutting width: 15", depth: 1/8"
- Max. stock thickness: 6 3/8", Min: 1/4"
- Min. stock length: 6 3/8"
- Feed rate: 16 and 30 FPM
- Cutterhead diameter: 3"
- Number of knives: 3 HSS
- Knife size: 15" x 1" x 1/8"
- Cutterhead speed: 5000 RPM
- Table size: 20 1/2" x 15" x 3 1/2"
- Overall size: 32" W x 28" D x 23 1/4" H
- Approx. shipping weight: 382 lbs.

PLEASE SEE
T27650 FOR
THE OPTIONAL
STAND



G0815 ~~\$1150⁰⁰~~ **SALE \$925⁰⁰**

15" PLANERS

- Motor: 3 HP, 240V, single-phase, 15A
- Max. cutting width: 15", Depth: 1/8"
- Max. stock thickness: 8", Min: 3/16"
- Min. stock length: 8"
- Feed rate: 16 & 30 FPM
- Cutterhead diameter: 3", Speed: 4800 RPM
- Power feed rollers: solid serrated steel
- Precision-ground table size: 15" x 20"
- Overall size: 32 1/2" W x 42" D x 45 1/8" H
- Approx. shipping weight: 675 lbs. (G0453), 672 lbs. (G0453Z)



BUILT-IN
MOBILE
BASE!



G0453Z
SHOWN

3 KNIFE CUTTERHEAD
G0453 **ONLY \$1250⁰⁰**

SPIRAL CUTTERHEAD
G0453Z **ONLY \$1795⁰⁰**



1-800-523-4777 grizzly.com®

VIEW VIDEOS AT
grizzly.com

TECHNICAL SERVICE: 570-546-9663 • FAX: 800-438-5901

2 GREAT SHOWROOMS!
BELLINGHAM, WA • SPRINGFIELD, MO



**BUY NOW,
PAY LATER**
with Affirm
Choose your
monthly payments
at checkout



EDITORIAL CONTENT CHIEF **DAVE CAMPBELL**
DEPUTY EDITOR **CRAIG RUEGSEGGER**
ART DIRECTOR **KARL EHLERS**
DIGITAL CONTENT MANAGER **LUCAS PETERS**
SENIOR DESIGN EDITOR **KEVIN BOYLE**
DESIGN EDITOR **JOHN OLSON**
TOOLS EDITOR **BOB HUNTER**
ADMINISTRATIVE ASSISTANT **SHERYL MUNYON**

CONTRIBUTING CRAFTSMEN **JIM HEAVEY, MATT SEILER, BRIAN SIMMONS, BOB BAKER, BRIAN BERGSTROM, KENT WELSH**
PHOTOGRAPHERS **CARSON DOWNING, JASON DONNELLY**
CONTRIBUTING EDITORS **LARRY JOHNSTON, BILL KRIER, RANDY MAXEY**

CONTRIBUTING ILLUSTRATORS **LORNA JOHNSON, ROXANNE LEMOINE, KURT SCHULTZ**
PROOFREADERS **SAM CADY, BABS KLEIN, IRA LACHER**

ADVERTISING AND MARKETING
VICE PRESIDENT & GROUP PUBLISHER **SCOTT MORTIMER**
GROUP BUSINESS DEVELOPMENT DIRECTOR **CURT BLADES**
ADVERTISING ACCOUNT EXECUTIVE **DANIEL WELLS**
ONLINE MEDIA KIT **WOODMAGAZINE.COM/MEDIAKIT**

BUSINESS MANAGER **DARREN TOLLEFSON** CONSUMER MARKETING MANAGER **ELAINE BOURICK**
PRODUCTION MANAGER **SANDY WILLIAMS** PREPRESS DESKTOP SPECIALIST **RANDY J. MANNING**
COLOR QUALITY ANALYST **PAMELA POWERS**

MEREDITH NATIONAL MEDIA GROUP
PRESIDENT **JON WERTHER**

PRESIDENT AND GENERAL MANAGER OF MEREDITH MAGAZINES **DOUG OLSON**
PRESIDENT OF MEREDITH DIGITAL **STAN PAVLOVSKY**
PRESIDENT OF CONSUMER PRODUCTS **TOM WITSCHI**
CHIEF REVENUE OFFICER **MICHAEL BROWNSTEIN**
CHIEF MARKETING OFFICER **NANCY WEBER**
CHIEF DATA AND INSIGHTS OFFICER **ALYSSA BORSIA**

SENIOR VICE PRESIDENTS
CONSUMER REVENUE **ANDY WILSON** DIGITAL SALES **MARC ROTHSCHILD**
RESEARCH SOLUTIONS **BRITTA CLEVELAND** DIGITAL VIDEO **MELINDA LEE**
CHIEF DIGITAL OFFICER **MATT MINOFF**

VICE PRESIDENTS
FINANCIAL **CHRIS SUSIL** BUSINESS PLANNING AND ANALYSIS **RON SILVERSTONE**
CONTENT LICENSING **LARRY SOMMER** CORPORATE SALES **BRIAN KIGHTLINGER** DIGITAL SALES **MARLA NEWMAN**
DIRECT MEDIA **PATTI FOLLO** BRAND LICENSING **ELISE CONTRASTY** HUMAN RESOURCES **DINA NATHANSON**
STRATEGIC SOURCING, NEWSSTAND, PRODUCTION **CHUCK HOWELL** CONSUMER MARKETING **STEVE CROWE**



CHAIRMAN AND CHIEF EXECUTIVE OFFICER **STEPHEN M. LACY**
PRESIDENT AND CHIEF OPERATING OFFICER **TOM HARTY**
PRESIDENT, MEREDITH LOCAL MEDIA GROUP **PAUL KARPOWICZ**
CHIEF FINANCIAL OFFICER **JOSEPH CERYANEC**
CHIEF DEVELOPMENT OFFICER **JOHN ZIESER**
VICE CHAIRMAN **MELL MEREDITH FRAZIER**
IN MEMORIAM **E.T. MEREDITH III (1933-2003)**

► For subscription help:
Online: woodmagazine.com/myaccount
E-mail: wdmcsustserv@cdsfulfillment.com
Phone: 800-374-9663, select option 1.

► To find past articles: Search for previous articles, plan corrections, and article updates online at woodmagazine.com/index.

► To order past articles and issues: For articles, search woodstore.net. For issues, visit woodmagazine.com/backissues.

Our subscriber list is occasionally made available to carefully selected firms whose products may be of interest to you. If you prefer not to receive information from these companies by mail or by phone, please let us know. Send your request along with your mailing label to Magazine Customer Service, PO Box 37508, Boone, IA 50037-0508.

© Copyright Meredith Corporation 2017. All rights reserved. Printed in the U.S.A.
Meredith Corporation allows the purchaser of this magazine to photocopy the included patterns solely for personal use. Any other reproduction of these patterns is strictly prohibited.



Get plans for this intarsia American flag at woodmagazine.com/intarsiaflags. The plans also include the Canadian flag.

A time (and place) to chill

My kids got me addicted to the hip-hop musical *Hamilton*, a biography of U.S. founding father Alexander Hamilton. His often-contentious personal and political life ended prematurely—spoiler alert—in a predawn duel with rival Aaron Burr (sir).

When I first listened to the cast recording, I found myself surprised, and oddly comforted, that the political climate then wasn't that different from today, 213 years after Hamilton's death. Again, nerves seem to be close to the surface, and the tension spills over into everyday life. An advertiser runs the same "buy American-made" message they've run without complaint for years, and I get emails from offended Canadians. Even the apolitical posts on our woodworking-exclusive Facebook page sometimes draw disproportionate ire.

We're so blessed as woodworkers to have a hobby into which we can escape from the

news (fake or otherwise). I suggest just retreating into the room where it happens.

Turn off the TV and turn on your table saw. Log out of the computer and make something beautiful out of a log. Enjoy the peaceful process of sharpening your chisels instead of dulling your mind on social media.

Rather than building animosity, build the latest homage to our brave servicemen and women on *page 48*. Be a little subversive and take a shot at the icebox-with-a-secret project on *page 42* (which, ironically, *doesn't* chill). I promise, as long as you're enjoying time in the shop, you're not throwing away your shot.

See you in the shop!

Dave Campbell
dave.campbell@meredith.com
Facebook and Twitter: @WOODeditor

PLANS

- 24 On the cover: Outfeed Table**
At the end of the day, stop, drop, and roll away this support system with storage.
- 30 Phone and Tablet Charging Station**
Corral cord clutter inside this elegant, easy-to-build accessory.
- 42 Icebox with a Secret**
This totally cool project hides huge storage inside its classically styled skin.
- 48 Army Artillery Toys**
Jeepers! Our Mil-spec series salutes the ground game with two tough toys.

TOOLS & TECHNIQUES

- 31 Make Your Own Plywood**
Don't settle for home-center faces; add exotic veneer to beautify the beast.
- 36 Shop Test: Dust Collectors**
Forget specs: We measured airflow and filtration equally to level the playing field.
- 54 Plumb for Compressed Air**
Skip the trippin' on air hoses when you scatter hookups around your shop.
- 59 Tools & Materials**
Bench grinders, a cordless trim router, and more.

DEPARTMENTS

- 1 Taking Measure**
Escape to the shop.
- 4 Wood-Wide Web**
25 project plans for \$25. Twice.
- 6 Sounding Board**
Your voice, your projects, your shop.
- 14 Ask WOOD**
Jig up to saw circles.
- 16 Shop Tips**
Double-dowel joints, and more.
- 72 What's Ahead**
A sneak peek at your next WOOD.

42





36



59



30



48



25 SHOP PLANS FOR \$25!



This profusion of plans represents the potential for a complete shop facelift. Organize and overhaul your shop with plans for workcenters, machinery bases, tool organizers, and more. For a limited time, you can save nearly \$170 when you purchase this hand-selected bundle. woodmagazine.com/25for25shop



25 OUTDOOR PLANS FOR \$25!



We've curated our top outdoor plans and packed them into one yard-transforming bundle. Save more than \$230 on plans for shade-casting arbors, eye-catching planters, feet-easing seating, and more. For a limited time, reclaim your outdoors at woodmagazine.com/25for25outdoor.



Want to see more deals like this? Get them first by signing up for our weekly WOOD Store Deals newsletter at woodmagazine.com/woodstoredeals.

Titebond®

THE PRO'S ADVANTAGE™

The Experts **Trust** Titebond®

“

I've been using Titebond wood glues on my custom projects and in my woodworking classes for years. I rely on Titebond for many different applications. Whether for indoor or outdoor use, I've never had a glue joint failure. I trust the performance from Titebond for all my projects.

George VondriskaWoodWorkers Guild of America
Vondriska Woodworks

”

See George discuss gluing tips and woodworking techniques at wwgoa.com.

Titebond offers the most comprehensive assortment of glues for bonding wood, including Titebond III Ultimate Wood Glue. For more information on the right glue for your next project, visit titebond.com or call 1.800.347.4583.



SOUNDING BOARD

YOUR VOICE



There's gold in them thar back issues

While reading issue 244 of WOOD® magazine (Dec/Jan 2016/2017), I was again reminded how it is the only woodworking publication that actually teaches you how to build things and provides detailed plans. (The 4-square Table and Chairs article is like having a coach by your side.) And it always has been.

Case in point: The dust-collection hood we built for our radial-arm saw left a lot to be desired—because it also left a lot of dust everywhere—especially when pivoted off a 90° cut. In search of a better solution, I spent many hours on the internet Googling and searching YouTube and found only bigger, more cumbersome boxes.

Coming up empty there, I went old-school, manually searching through my old copies of WOOD. That's when I found issue 43 (June 1991) with its dust-collection box for a radial-arm saw: a louvered box that you pin behind the blade oriented at the angle of the cut. Elegant and brilliant!

—**Pamela Pearce-Landers**
Sanatoga, Pa.

You're making us blush, Pamela! Our online article index at woodmagazine.com/index would have found that article for you quickly (just search for "radial arm saw"). For readers who don't have that issue, we've added the free plan to our website; find it at woodmagazine.com/RASDC.

Matt knows beans

Matt Seiler's article "Beans of Wisdom" in WOOD issue 244 was spot-on. I'm now looking for a group of fellow scrap hoarders so that we can sit in a circle and talk about our affliction. I'll stand up and say, "I'm Chris, and I'm a wood-scrap hoarder."

Chris Stasny
via e-mail



How do you figure?

Many furniture projects in WOOD magazine use "figure-8" fasteners to attach the tabletop to the apron. But I can't seem to find them at any home centers or hardware stores in my area. Where can I get them?

O.J. Cain
via e-mail

That fastener, sometimes called a "desktop fastener," allows for seasonal wood movement, O.J. You may have to go to a mainline woodworking store, such as Rockler or Woodcraft, or find them online at woodmagazine.com/buyfigure8.

Rapping on wood

While attending the International Builders Show, WOOD's Daniel Wells had his photo taken with rapper-turned-DIY-TV-host Vanilla Ice (below). So we asked our Facebook and Twitter followers to come up with a good rap name for a woodworker. Here are some of our favorite responses:

Leonardo Murphy Busta Knuckle
Gareth Glenn 50 Centimeters
William Head Chisel in da Dizzle
John Connor Flava Lathe
Victor LaDonna Kinnick Sir Sawzalot
James Cook Dust Collecta
Eddy Harrell Little Piney
Daniel Przybylski Eight Penny



Connect with us

 facebook.com/woodmagazine

 twitter.com/WOOD_magazine

 pinterest.com/woodmagazine

 instagram.com/woodmagazine

E-mail woodmail@woodmagazine.com; or write to WOOD magazine, 1716 Locust St., LS-253, Des Moines, IA 50309; or call 800-374-9663, option 2.

One Workcentre Many Tasks

TWX7 Workcentre Systems

The TWX7 brings the precision and convenience of the legendary Triton Workcentre to a new generation. Constructed using lightweight yet robust extruded aluminium sections, which support innovative low-friction work surfaces, the TWX7 is the ideal solution for the woodworking enthusiast. In addition the all new TWX7 is now a highly capable and mobile multi-purpose workshop for professional site use.



Router Table Module Precision router table & fence with featherboards



Contractor Saw Module Powerful & accurate table saw with full length fence

TWX7

Workcentre



Clamping Table Module

Clamping table supplied as standard with 120Kg working load



Optional Modules

TWX7 RT001

Router Table Module



TWX7 CS001

Contractor Saw Module



triton
Precision Power Tools

Engineered Precision

tritontools.com

SOUNDING BOARD

YOUR PROJECTS



This beautiful bloodwood blanket chest, built by **Don Glencross**, of Maynard, Mass., features a 38" box joint on each corner. He made it for his niece, Kelly.



Pete Jacobs, of Yorktown, Va., made a playful version of our Hidden-hook Coat Rack in issue 240 (July 2016) as a gift for his musically inclined daughter. Pickling stain colors the white keys; ebony stain keeps the black keys looking sharp.

What to do with your leftover wood scraps? When they're from a garapa (Brazilian ash) deck, you turn them into a matching patio table, as **Ken Cook**, of East Longmeadow, Mass., did.



Unwilling to settle for an off-the-shelf carrier for his three-wheel Catrike, **Bart Schmidt**, of Loudon, Tenn., crafted his own from maple, red oak, and birch plywood.

WeatherTech®

American Manufacturing Done Right™



Pickup Bed Protection

TechLiner®

FloorLiner™

Laser Measured

*Available in Black, Tan and Grey
(Cocoa Available for Select Applications)*

COMPLETE COVERAGE FOR YOUR VEHICLE

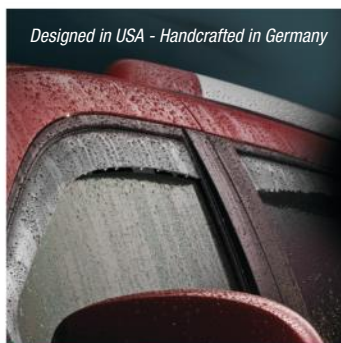
See our full line of Automotive Accessories at **WeatherTech.**



All-Weather Floor Mats



Roll Up Truck Bed Cover



Side Window Deflectors



BumpStep®XL

Designed in USA - Handcrafted in Germany

NEW!

24" Hitch Mounted Bumper Protection

Accessories Available for

Acura · Audi · BMW · Buick · Cadillac · Chevrolet · Chrysler · Dodge · Ferrari · Ford · GMC · Honda · Hummer · Hyundai · Infiniti · Isuzu · Jeep · Kia · Land Rover · Lexus · Lincoln · Maserati · Mazda · Mercedes-Benz · Mercury · Mini · Mitsubishi · Nissan · Oldsmobile · Plymouth · Pontiac · Porsche · Saab · Saturn · Scion · Subaru · Suzuki · Toyota · Volkswagen · Volvo · and more!

Order Now: 800-441-6287



American Customers
WeatherTech.com



Canadian Customers
WeatherTech.ca



European Customers
WeatherTech.eu

advertisement

Finishing Answers

Each issue, the finishing experts at Varathane answer your staining and finishing questions.

Question:

How do I stain a large table top and get consistent color across the entire surface?

—Daniel W. - Belton, MO



Answer:

Staining a large surface is different than staining a small surface. You need to work a little more quickly when staining a table top to achieve desirable results.

Quickly and evenly apply a generous coat of Varathane Premium Fast Dry Wood Stain over the entire area and let it set for a couple of minutes. Then quickly wipe away all excess with consistent, medium pressure.

This one step process will allow the product to dry in about an hour for final finishing.

Varathane
SINCE 1958

For more finishing tips, visit:
www.varathanemasters.com

SOUNDING BOARD

YOUR PROJECTS

Instead of pine, as called for in the plans for this Chairsides Chest in issue 229 (November 2014), **Randy Webb**, of Martinsville, Ind., chose curly maple, making the project both simple and elegant.



For this Greene-and-Greene-style clock from issue 201 (November 2010), **Bob Wolak**, of Salisbury, Md., replaced the ceramic tile with a marquetry panel he created. The clock body is sapele finished with clear shellac.



Jeff Kunde, of Kenwood, Calif., transformed a load of old Douglas fir 4x4s harvested from a wine cave into this inviting arbor. He bulked up the posts and beams by binding four of them together with steel strapping. 🌳

Send us a photo of your work

Want to see your work showcased in WOOD® magazine? Send a high-resolution digital photo of your completed project to woodmail@woodmagazine.com.

FINISH FAST. FINISH ONCE. FINISH LIKE A MASTER.



Nathan Wiens
Artist & proprietor, Chapel Arts
Master woodworker
Vancouver



Varathane® stain gives true color in one coat. And Varathane Triple Thick Polyurethane has the durability of three coats, in only one. Providing you the ultimate finish, in less time. That's why master woodworkers, like Nathan, prefer Varathane. So don't just finish it. Varathane it.

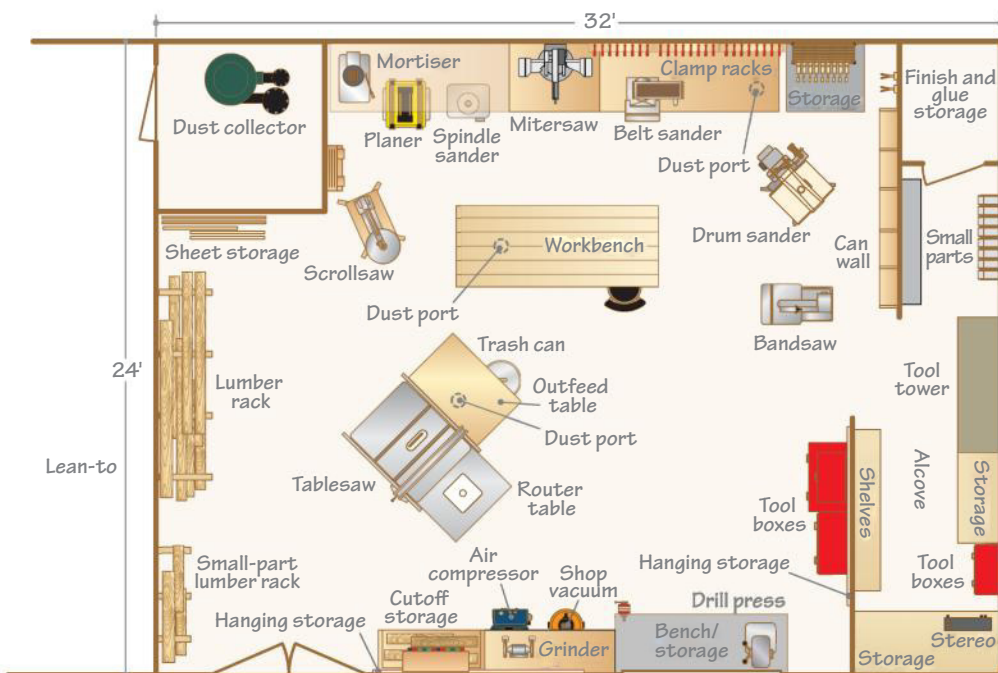
Varathane
— SINCE 1958 —

VARATHANE.COM

© 2017 Rust-Oleum

SOUNDING BOARD

YOUR SHOP



You could say that Pete Lynah has had sawdust in his shoes since age 10 when his dad gave him and his brother a 50-lb keg of 6d common nails for Christmas. He's since moved on from hammering together tree forts and go-karts to building small exotic-wood boxes, oval Shaker boxes, corner cabinets, dining tables, and cedar-lined hope chests for his daughters. He built

his first workshop more than 35 years ago, and after retiring he decided it was time for a shop upgrade. So he built a new one—essentially an upsize version of his previous space, right down to the tool layout.

Pete framed, wired, and insulated a new 24×32' metal-clad pole building. The ¾" plywood floor rests on pressure-treated 2×6 joists over a concrete slab. The joists provide

room for 5" metal dust-collection ductwork under the floor, running to a sealed room where his 2-hp dust collector resides, vented outside via three dryer vents. The ductwork leads to ports at his tablesaw, mitersaw, and by two benches. A shop vacuum services his smaller tools.

A mini-split heat pump regulates temperature year-round. During extended



South-facing double doors provide natural light and make easy work of moving materials and projects in and out.

time out of the shop in cold weather, Pete shuts off the mini-split, and a separate room with baseboard heat keeps finishes and glue from freezing.

Pete built in loads of storage. A walled-off alcove in the back of the shop houses shelves for miscellaneous items. At the opposite end of the shop, Pete built wall racks for his raw lumber, sheet goods, and cut-offs. He organizes hardware and fasteners for woodworking and household maintenance in metal cans of all shapes and sizes, then arranges them on his “can wall.”

A 200-amp breaker panel provides electric service for six 20-amp, 120V receptacle circuits, two 15-amp lighting circuits, and four 240V circuits to supply his tablesaw, dust collector, and baseboard heater. 🌲

woodmagazine.com



A retired environmental science teacher, Pete felt compelled to install a 5kW solar array on the south-facing roof of the shop. The electricity it generates is subtracted from his utility bill. During summer months, the solar system produces more power than the shop consumes. The lean-to provides lumber storage.

In an alcove, a “tool tower” on the right stores portable power tools in their original cases. The machinist’s chests and stationary drawers next to it hold small tools such as screwdrivers, files, chisels, and sharpening equipment, as well as mechanics tools, including sockets and wrenches.

Show us your shop

Send high-resolution digital photos of your shop to woodmail@woodmagazine.com and we may showcase it in the magazine!



13



THE WIDEST
RANGE OF
WOODWORKING
MACHINERY

Visit us at
scmgroupna.com

YOU NEVER FORGET YOUR FIRST MINIMAX

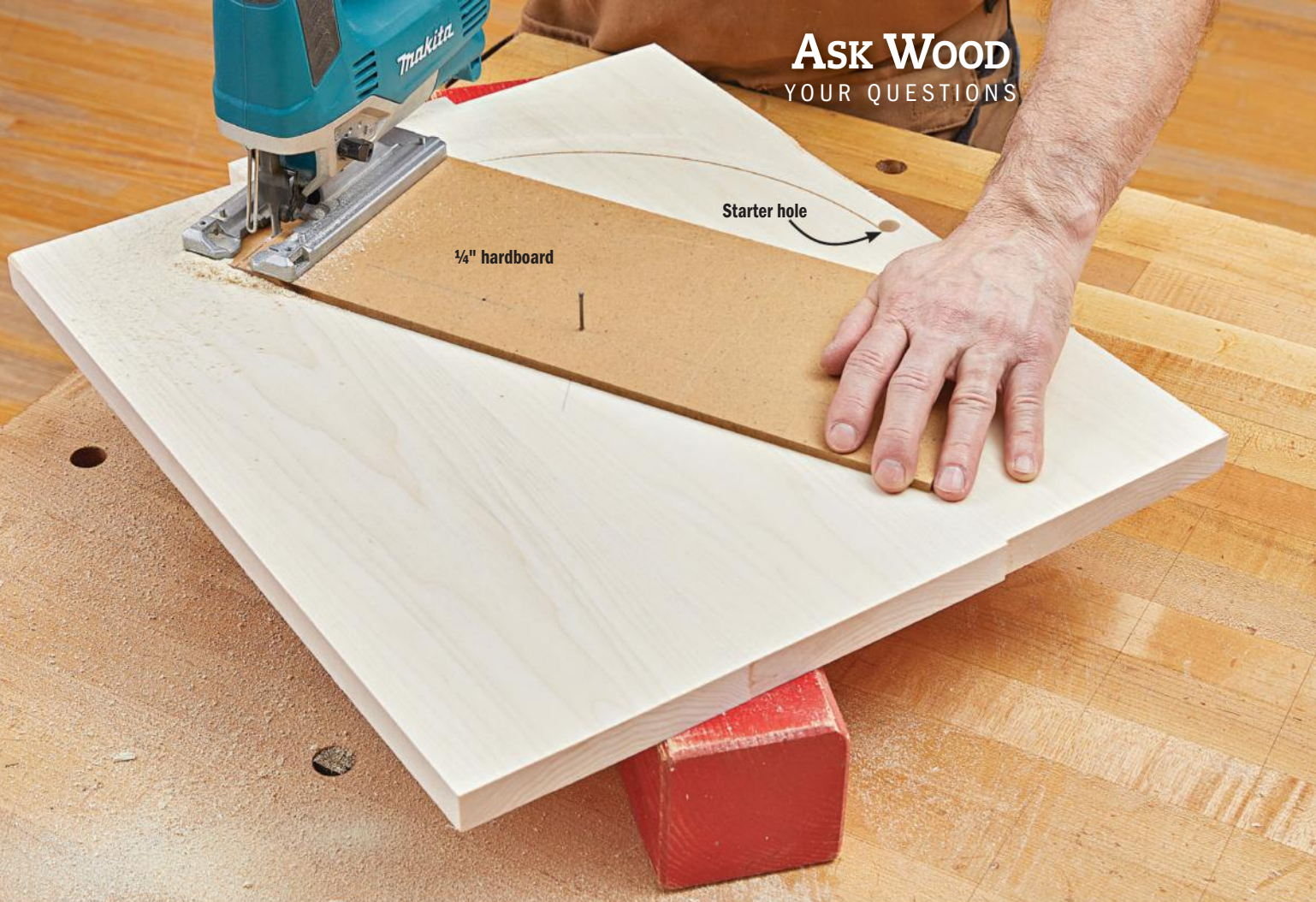
For over 65 years we have been developing machinery which heeds your voice before anything else. The voice of our customers teaches us to build machines that are flawless, reliable, durable. They are designed to overcome your challenges and help you accomplish your projects —big or small.



scmgroup

Contact us for more information at scmgroupna.com or marketingusa@scmgroup.com

minimax



Elevate the workpiece on a 4×4 to provide clearance for the blade, and rotate the panel as needed. Cutting slowly reduces blade flexing and gives the best finished edge.

Q Jig up a jigsaw for circles
I don't have a bandsaw or router, but need to cut a circular tabletop. Can I outfit my jigsaw with a trammel to do the job?

—Brian Davis, Normal, Ill.

A Although a jigsaw wouldn't be our first choice for cutting circles, Brian, it can be done. Begin by making an auxiliary base from 1/4" hardboard. Align the edge of the saw's foot with one end of the hardboard and cut a slot for the blade. (We got good results cutting circles with a 10-tooth-per-inch blade.) Then attach the saw with screws, if your base has them, or double-faced tape if it doesn't. Mark a line on the bottom face of the base parallel to the edge and aligned with the blade teeth.

Measure from the inside edge of the blade and mark your desired radius along the line. Drill a hole for a finish nail at this point, and at the centerpoint of the circle on your workpiece. When marking the centerpoint, either measure from the workpiece edge, or drill a blade starter hole tangent to the edge of the circle and chisel a flat surface where the hole

and circle meet. When you put the saw in place, the blade must rest snugly against the edge of the workpiece (or the flat edge of the hole) without deflection. 🌲



An auxiliary base eliminates tear-out and also reduces lateral blade movement. You may need screws longer than the stock screws to attach the auxiliary base.

Have a question?
Drop us an e-mail.
askwood@woodmagazine.com



FURNITURE MEDIC®

Start a business with your own two hands.

Turning your passion for woodworking into a full-time business is easier than you think. When you franchise with Furniture Medic® you become part of a multi-billion dollar industry*, maintaining, restoring and repairing commercial and residential wood of all kinds.



As a Furniture Medic® franchisee, *you'll benefit from:*

- National accounts with potential for recurring revenue**
- Scalability across multiple revenue streams
- Expert business, marketing, and technical support
- Extensive education and training programs
- Franchisee intranet and technical hotline

Top franchisee earnings of more than \$1.5 million in average annual gross sales***

**Join our winning team of
more than 300 franchisees.**



Call 888-636-1451

to take the first step in transforming
your business.

*IBISWORLD Industry Report, August 2015

**Not available in all areas. Referrals not guaranteed.

***Based on average annual gross sales for franchise Ownership Groups with average of over \$125,000 during the three-year period 2013-2015 as stated in Furniture Medic 2016 Franchise Disclosure Document.

The franchise sales information in this communication does not constitute an offer to sell a franchise. The offer of a franchise can only be made through the delivery of a Franchise Disclosure Document. Certain states require that we register the franchise disclosure document in those states before offering and selling a franchise in that jurisdiction. NY NOTE: This Advertisement is not an offering. An offering can only be made by a prospectus filed first with the Department of Law of the State of New York. Such filing does not constitute approval by the Department of Law. Moreover, we will not offer or sell franchises in those states until we have registered the franchise (or obtained an applicable exemption from registration) and delivered the franchise disclosure document to the prospective franchisee in compliance with law. Furniture Medic L.P. Minnesota File No. F7440. Furniture Medic L.P., 860 Ridge Lake Blvd., C2-7400, Memphis, TN 38120.

Financing is available through ServiceMaster Acceptance Company, a subsidiary of The ServiceMaster Co. LLC, to credit qualified individuals.

© 2017 Furniture Medic Limited Partnership. All rights reserved.

17-xFM-0271

Hollow a dowel for eye-popping joints

I always look for ways to add interesting details to boxes, so I developed a means of hollowing a dowel to create a “double dowel” joint reinforcement, as shown *right*.

To do the same you’ll need a doweling jig with replaceable inserts of various diameters. I use a Dowelmax jig (dowelmax.com).

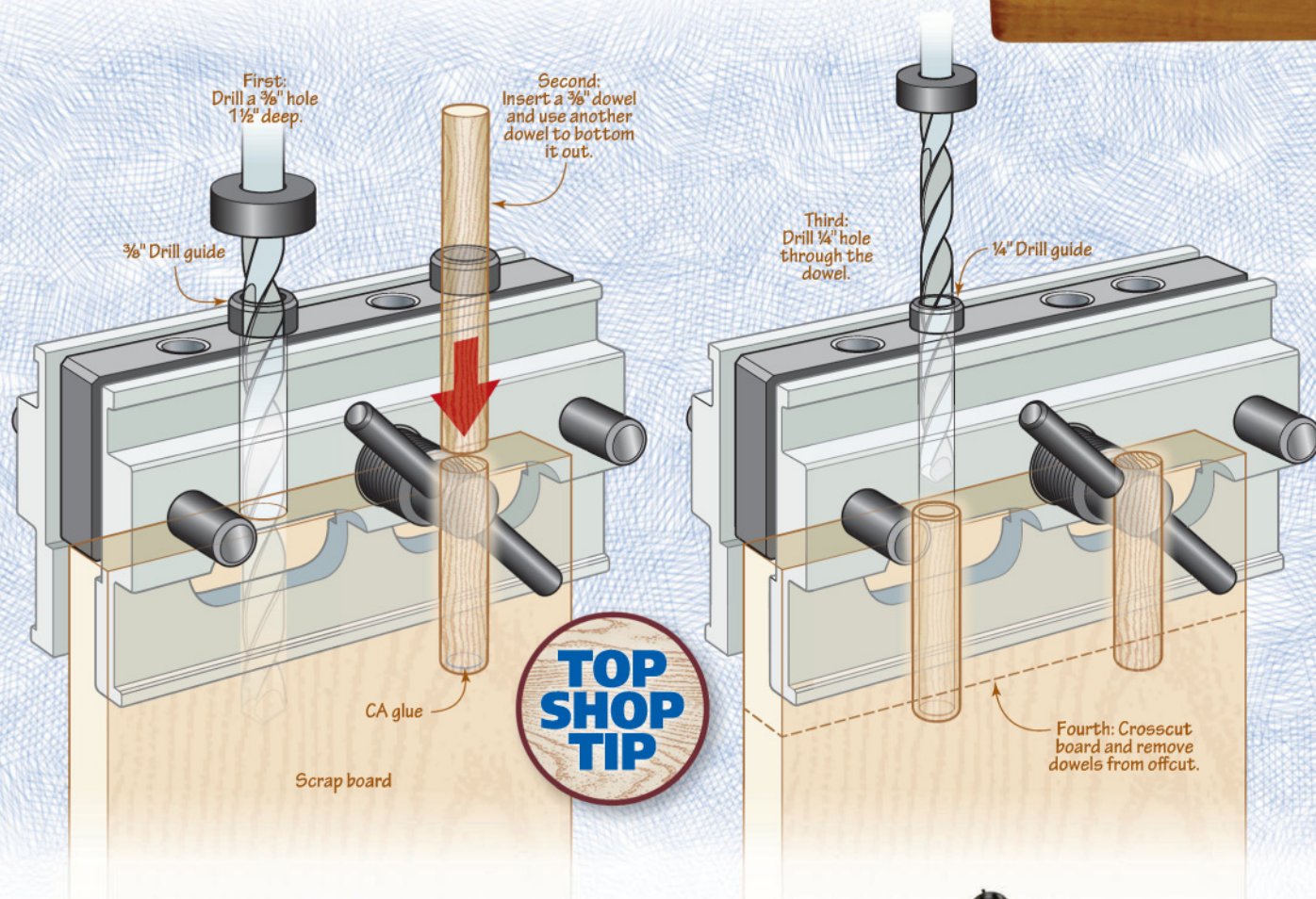
First, make a disposable wood fixture to hold the dowels for hollowing by placing $\frac{3}{8}$ " drill guides in the jig and drill $1\frac{1}{2}$ " deep into the end of a scrap board. Then add a drop of

cianoacrylate glue to one end only of $\frac{3}{8}$ " dowels $1\frac{1}{2}$ " long, and use a longer dowel to press the dowels to the bottom of each hole.

Next, place $\frac{1}{4}$ " drill guides in the jig and redrill the holes with a $\frac{1}{4}$ " bit. Crosscut the board about $1\frac{1}{4}$ " from the end. Use a $\frac{3}{8}$ " dowel to push out the hollow dowels.

After inserting a hollow dowel in a joint, you can fill it with contrasting wood, brass or aluminum rod, or epoxy.

—Jeff Baenen, Kenosha, Wis.



Tips earn up to \$150.

If your tip is the best of the issue, it wins **Top Shop Tip** honors, and you receive a **tool prize** worth at least **\$300**.

Send your tip, photos or drawings, and contact info to shoptips@woodmagazine.com

Because we try to publish original tips, please send yours only to **WOOD** magazine.



For sending this issue's *Top Shop Tip*, Jeff receives a Turncrafter Commander midi lathe from Penn State Industries worth \$370.



EXTERIOR COATED SCREWS MADE TO LAST

WITH ULTRA GUARD COATING - THE INDUSTRY LEADING
BRAND IN OUTDOOR CORROSION PREVENTION

OUR SCREW COATING'S
CORROSION RESISTANCE
IS TESTED USING A SALT SPRAY
TEST.

THE SCREW IS CONTINUOUSLY
SPRAYED WITH SALT WATER AND
OBSERVED UNTIL THE SCREW
SHOWS THE FIRST SIGN OF RED
RUST CORROSION.

THE MORE HOURS THE SCREW
LASTS DURING THE TEST, THE
MORE YEARS IT WILL LAST UNDER
NORMAL, REAL-WORLD
APPLICATIONS.



**ZINC
PLATED**

36 hrs

vs.

**ULTRA
GUARD**

3000 hrs



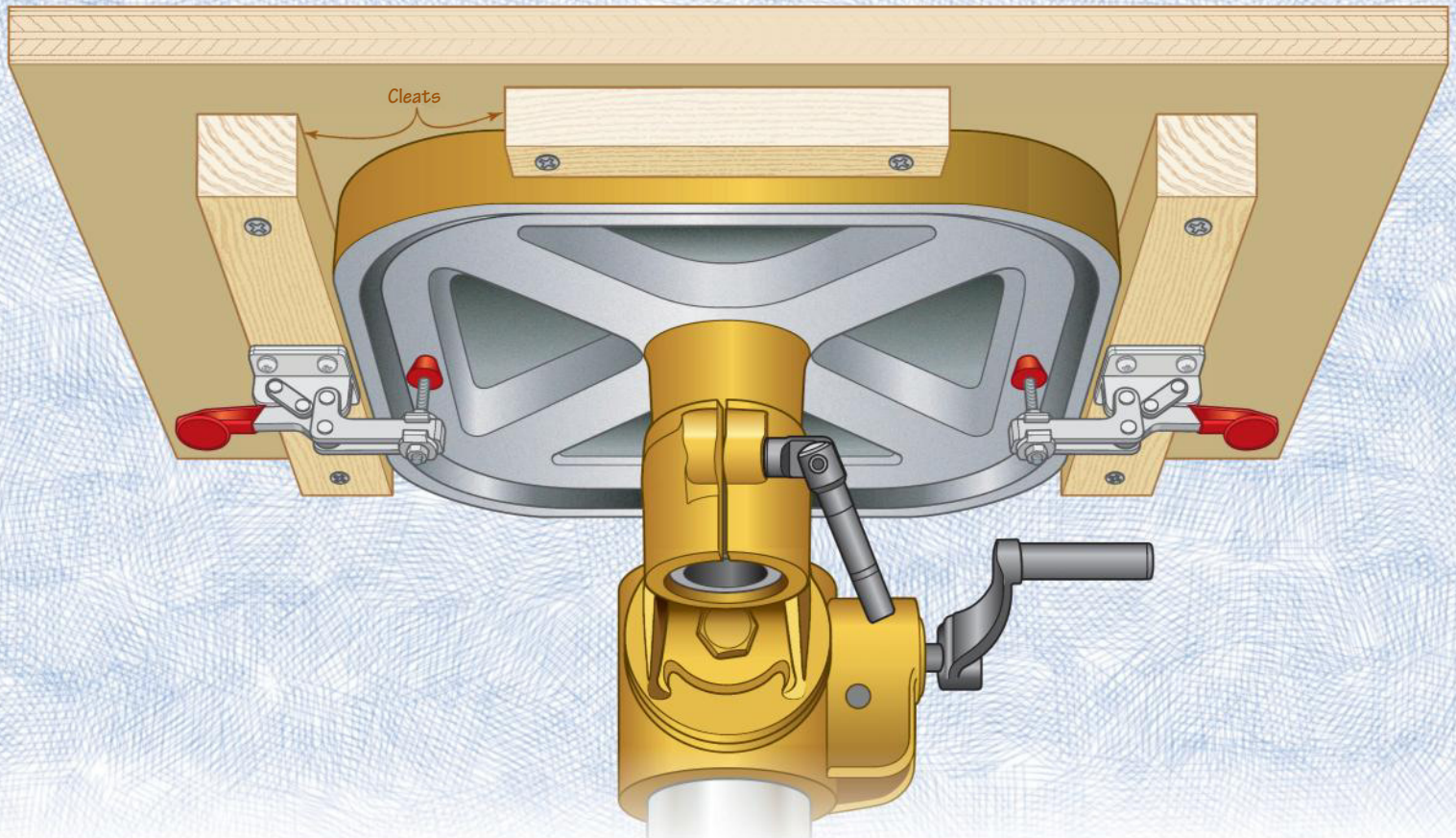
SHOP ONLINE
www.quickscrews.com
800.743.6916

SHOP TIPS

Quick-change, rock-solid drill-press table

I drill wood *and* metal at my drill press, so I needed a way to quickly remove and reinstall the large-surface table that serves woodworking purposes. A pair of hold-down toggle clamps provide the solution shown. You'll find them available from woodworking suppliers.

—Les Beeckman, Saginaw, Mich.

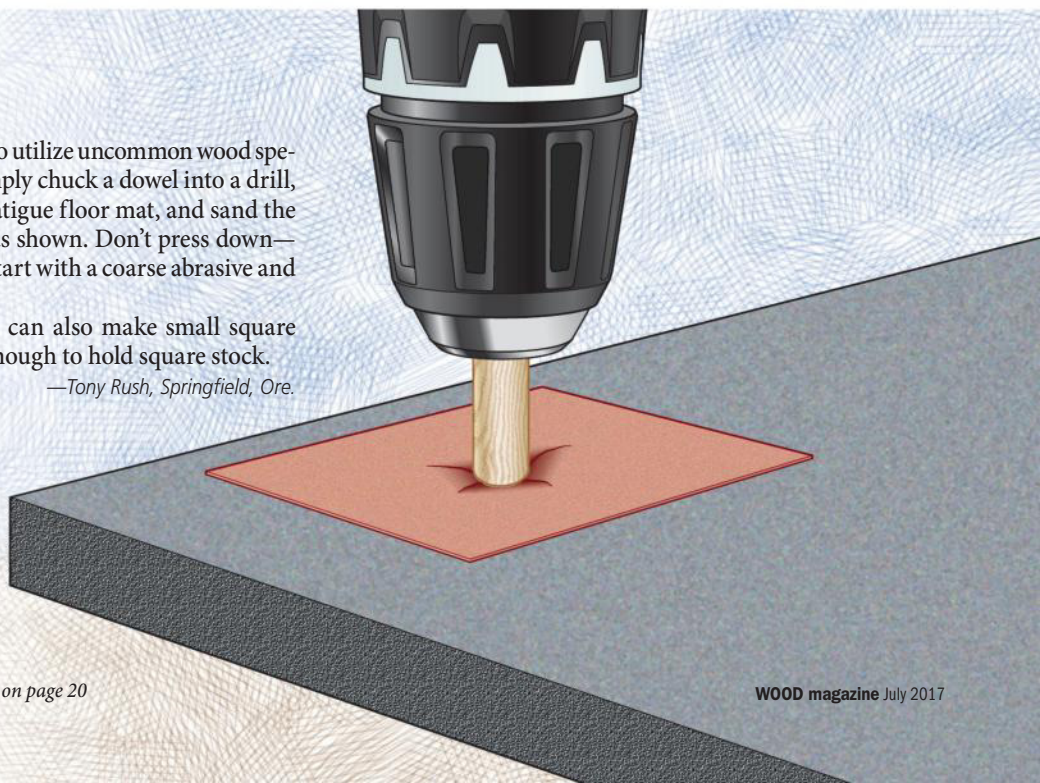


Make your own rounded plugs

For convenience, cost-savings, and the ability to utilize uncommon wood species, I like to make my own button plugs. I simply chuck a dowel into a drill, place a small square of abrasive on an anti-fatigue floor mat, and sand the dowel end to the shape of an M&M candy, as shown. Don't press down—allow the weight of the drill to do the work. Start with a coarse abrasive and work your way up to 220 grit.

Cut off the button at your bandsaw. You can also make small square buttons so long as your drill chuck is large enough to hold square stock.

—Tony Rush, Springfield, Ore.



 **WORK SHARP®**
KNIFE & TOOL SHARPENERS

 **Drill Doctor®**
The Drill Bit Sharpener



WOOD TOOL SHARPENING



DRILL BIT SHARPENING

SHARPENING SOLUTIONS

SINCE 1973



KNIFE AND TOOL SHARPENING



VISIT OUR WEBSITES TO LEARN MORE

WORKSHARPTOOLS.COM / DRILLDOCTOR.COM / 1.800.597.6170

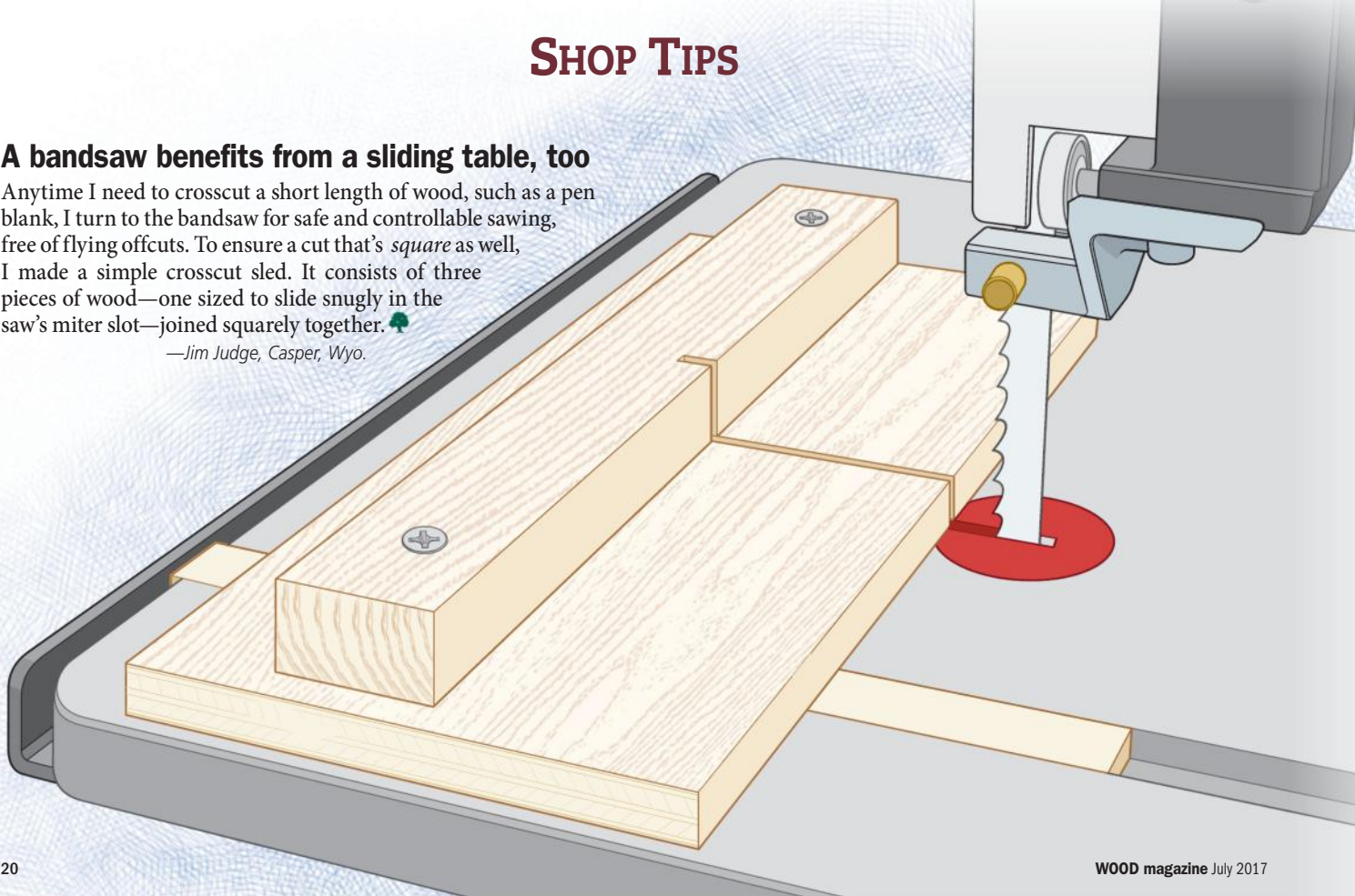


SHOP TIPS

A bandsaw benefits from a sliding table, too

Anytime I need to crosscut a short length of wood, such as a pen blank, I turn to the bandsaw for safe and controllable sawing, free of flying offcuts. To ensure a cut that's *square* as well, I made a simple crosscut sled. It consists of three pieces of wood—one sized to slide snugly in the saw's miter slot—joined squarely together. 🌲

—Jim Judge, Casper, Wyo.



SENCO®



COMPOSITE FASTENERS

No more wasted time, marred surfaces, or damaged equipment

- 100% steel & metal free
- Can be painted & stained
- Eliminate clamping tools & screws
- Cut, rout, and sand without damaging expensive blades, bits, or belts

Perfect for CNC fixturing, cabinets, furniture, drawers, decorative trim, and fine woodworking projects.

Learn more at SENCO.com



I think
I need a
moisture
meter.



Moisture Meters from Lignomat

The Woodworker's Choice:

*Nobody can beat our quality, price and
proven measuring technology.*



Mini-Lignos are accurate, reliable and versatile: Used when drying lumber, buying lumber, selecting lumber for a project, installing floors ...

The best tools and excellence in craftsmanship cannot guarantee lasting beauty in woodwork, if the wood for the project was too wet.

The solution is simple: Use a moisture meter and check the wood moisture before you start.

Best Lignomat Price
www.mini-Ligno.com

For a Recommendation call:
800-227-2105
www.Lignomat.com

Buy a pin or pinless meter from Lignomat:

- ✓ Better Quality
- ✓ Better Accuracy
- ✓ Better Warranty
- ✓ Better Customer Service



RIKON

Low Speed – High Performance

Sharpening tools or general grinding work is made a bit easier and more exact with RIKON's low speed 1,750 RPM grinders and buffers.



#80-805
8" Bench Grinder (1/2 HP)



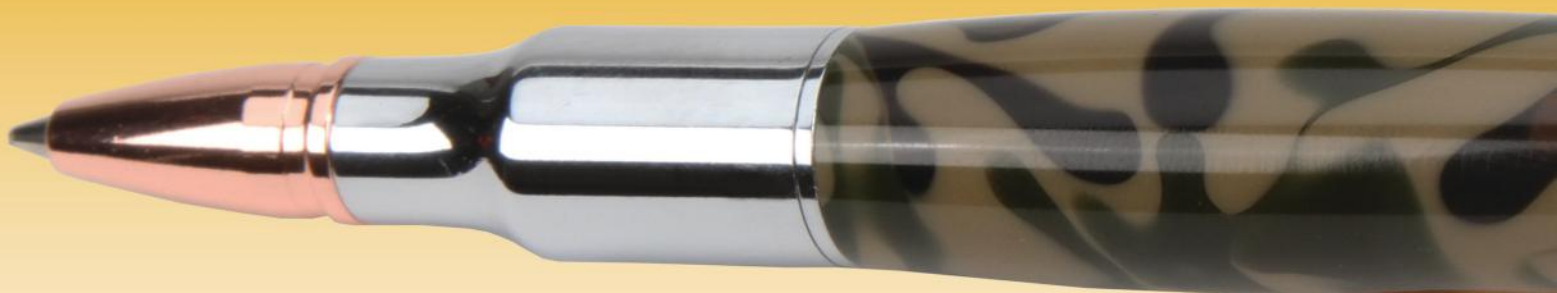
#81-608
8" Long Shaft Buffer (1/2 HP)



#80-808
8" Bench Grinder (1 HP)

For more information visit www.rikontools.com today!





Penn State Industries

Top Quality, Great Prices and Expert Advice!

1-800-377-7297 • www.pennstateind.com



Everybody Will Want Their Hands on One

Discover the joy of making these completely original and irresistibly fun Bolt Action and New Revolver Pen Kits. A great gift for every hunting, target shooting and gun aficionado. Both pen styles are completely authentic with precision engineered components that were carefully designed to ensure uniqueness and reliability. They feature a Parker™ style refill for smooth writing performance. And they're so easy, fun and fulfilling to make on a lathe, no one will believe you made something of this quality in 15 minutes.

Bolt Action Pen Kits

Our best-selling pen kits enjoys a huge following in the pen making community. It's beloved for its realistic bolt-action handle that smoothly advances and retracts to securely lock the refill in place. Includes a bolt-action rifle clip and replica 30 caliber cartridge and rose gold tip for added authenticity. You can even reverse the bolt for left handed operation! Requires a pen making mandrel, bushings (Item # PKCP3000BU \$5.95) and 3/8" drill bit (Item # PKEXEC-3/8 \$3.95). Patent No.: US D682,352 S

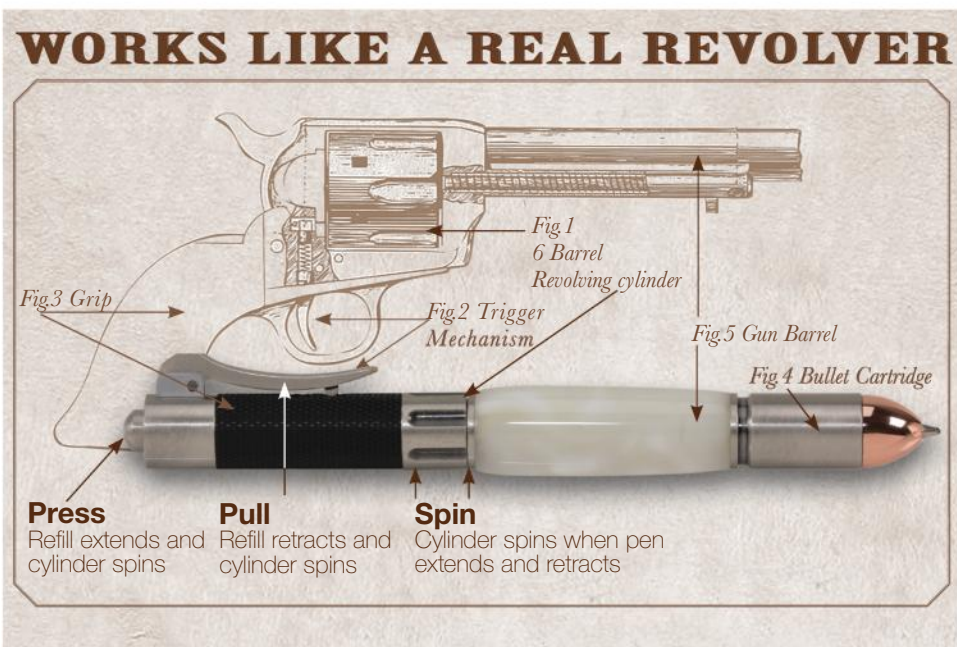
Easy to start with a FREE DVD! A \$20.95 value!

Our FREE 45-minute instructional DVD is packed with all the info you need to start making pens. Order Item # DVD. You'll join thousands of other pen makers who love creating beautiful gifts!

Revolver Pen Kits **NEW!**

These nostalgically stylish pens look and work just like a real revolver. When you press the click mechanism the pen tip extends, the trigger clip moves up and the 6-barrel cylinder rotates to replicate you loading the gun. Then, when you pull the hairpin trigger pen clip the tip retracts while the 6-barrel cylinder quickly spins

to replicate you firing the gun. Right above the cylinder you'll find a black metal grip that mimics a revolver handle. And the bullet cartridge pen tip represents your favorite revolver bullet. Requires a pen making mandrel, bushings (Item # PKREVB \$5.95) and 3/8" drill bit (Item # PK10-10 \$3.95). Patent pending.





Bolt Action Pen Kit in Chrome

Bolt action handle
smoothly advances
and retracts the refill



Revolver Pen Kit in Antique Brass

Revolver Pen Kits **NEW!**

	Item #	1-4	5-9	10-24	25+
Chrome	#PKREVCH	\$22.95	\$21.95	\$20.95	\$19.95
Gun Metal	#PKREVGM	\$22.95	\$21.95	\$20.95	\$19.95
Antique Brass (shown above)	#PKREVAB	\$24.95	\$23.95	\$22.95	\$21.95
Antique Pewter	#PKREVAP	\$24.95	\$23.95	\$22.95	\$21.95

4 Revolver Pen Kit Starter Set

You get 1 Pen Kit in Chrome, 1 in Gun Metal, 1 in Antique Brass and 1 in Antique Pewter. Plus, you get the bushings and drill bit.

#PKREVSS **SAVE \$25 Only \$79.95**

*Kits in packs may vary subject to availability

SAVE 24%



Chrome



Gun Metal



Antique Pewter

Bolt Action Pen Kits **BEST SELLER!**

	Item #	1-4	5-24	25-49	50+
Chrome (shown above)	#PKCP8010	\$12.95	\$12.05	\$11.15	\$10.25
Gun Metal	#PKCP8020	\$12.95	\$12.05	\$11.15	\$10.25
24kt Gold	#PKCP8000	\$14.95	\$13.95	\$12.95	\$11.95
Antique Brass	#PKCP8040	\$14.95	\$13.95	\$12.95	\$11.95

3 Bolt Action Pen Kit Starter Set

You get one of each pen in Chrome, Gun Metal and 24kt Gold plus the 3/8" drill bit and 2pc Bushing Set

#PKCPBAPAK **SAVE \$8 Only \$42.75**

*Kits in packs may vary subject to availability

SAVE 16%



Gun Metal



24kt Gold



Antique Brass



Antique Pewter

Deer Hunter Bolt Action Pen Kits

	Item #	1-4	5-24	25-49	50+
Antique Brass	#PKCP8DHAB	\$16.95	\$15.95	\$14.95	\$13.95
Antique Pewter	#PKCP8DHAP	\$16.95	\$15.95	\$14.95	\$13.95

Tablesaw Outfeed Table

Every shop needs a good support system



DIMENSIONS:
20" W x 42½" D x 34½" H

Approximate
materials cost:

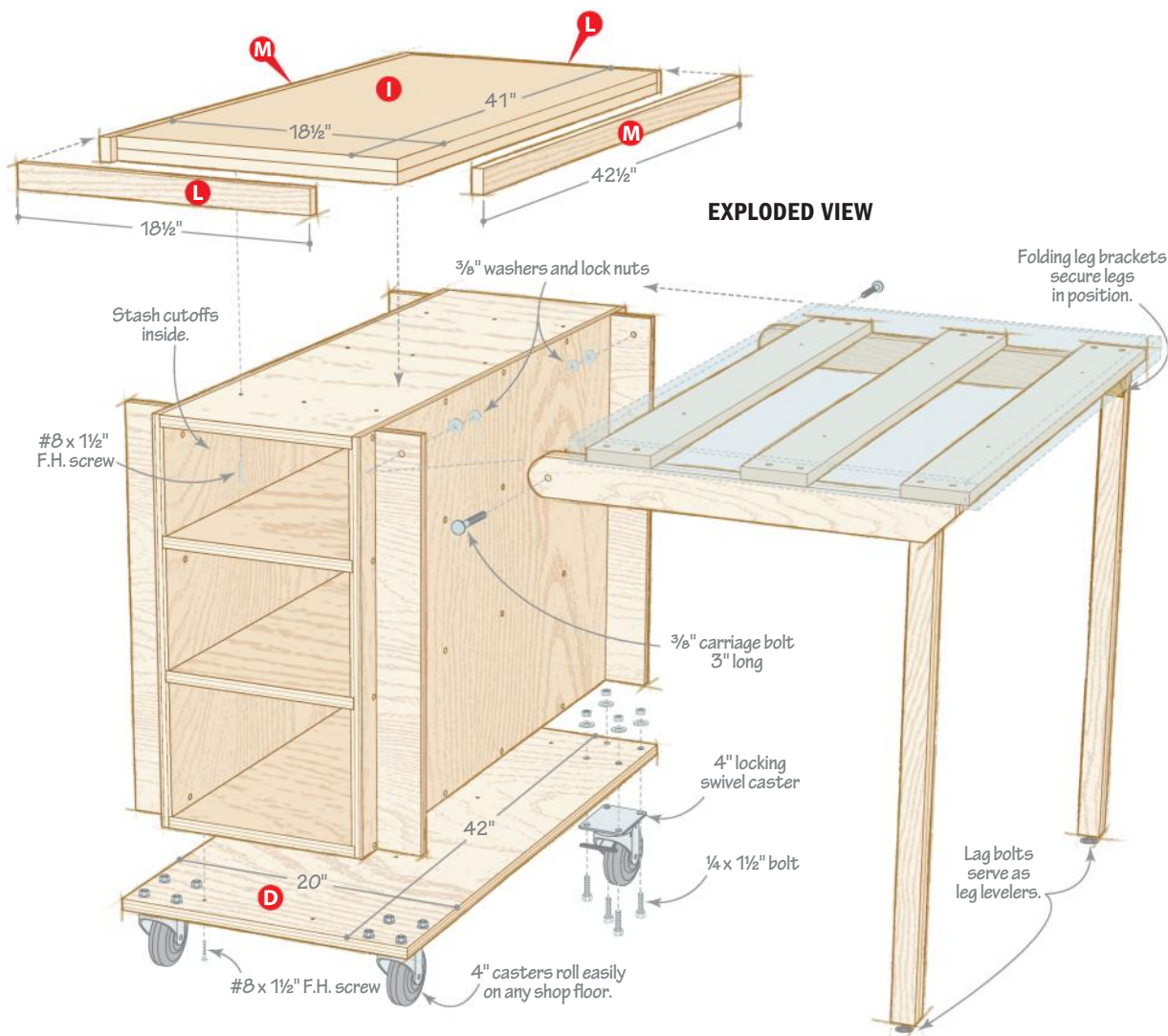
\$225

1½

sheets of ¾" plywood and

1

sheet of ¾" MDF

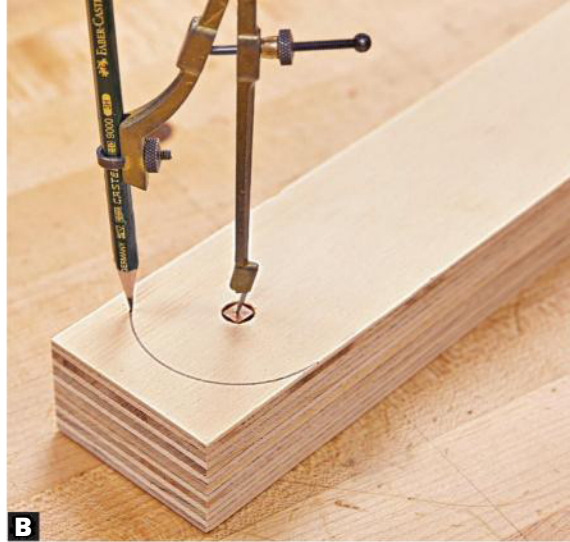


To improve safety and cut quality, workpieces should be well-supported as you feed them off a tablesaw. This fixture provides ample support, even for a full sheet of plywood, without taking over your shop. A flip-up wing provides a whopping $44\frac{1}{2} \times 42\frac{1}{2}$ " surface when needed, then folds down to a compact $20 \times 42\frac{1}{2}$ " footprint. The table even provides storage for lumber cutoffs. And for ultimate versatility, casters allow you to roll it out of the way or to another spot in the shop to use as a stand-alone table.

The height of your saw may differ from ours (35"), so adjust the lengths of parts A, C, E, and F if needed to place the tabletop $\frac{1}{8}$ " lower than the saw table. Have your casters in hand before beginning, as their height affects the height of the table as well.



A Butt the square end of a pivot arm against the case and align the arm's edge with the top of the case. Drill a $\frac{3}{8}$ " hole through the arm and rib.



B To create a pivot point, fill the hole with a length of $\frac{5}{16}$ "-square stock. Mark lines from corner to corner to find the center of the square. Then mark the $1\frac{1}{4}$ " radius.

The case comes first

1 Cut the case sides (A), shelves, (B), ribs (C), and base (D) to size [Materials List, Cutting Diagram].

► Learn to cut perfectly sized dados on the tablesaw.
woodmagazine.com/perfectdadovid

2 Rabbet and dado the case sides [Drawing 1]. Dry-fit the sides and shelves, and drill pilot holes into the shelves. Disassemble the parts and drill pilot holes through the uppermost shelf for attaching the top (I) later. Apply a finish to the interior faces of these pieces [Skill Builder, next page].

3 After the finish dries, glue and screw together the case sides, shelves, ribs, and base [Exploded View]. Apply finish to the exterior.

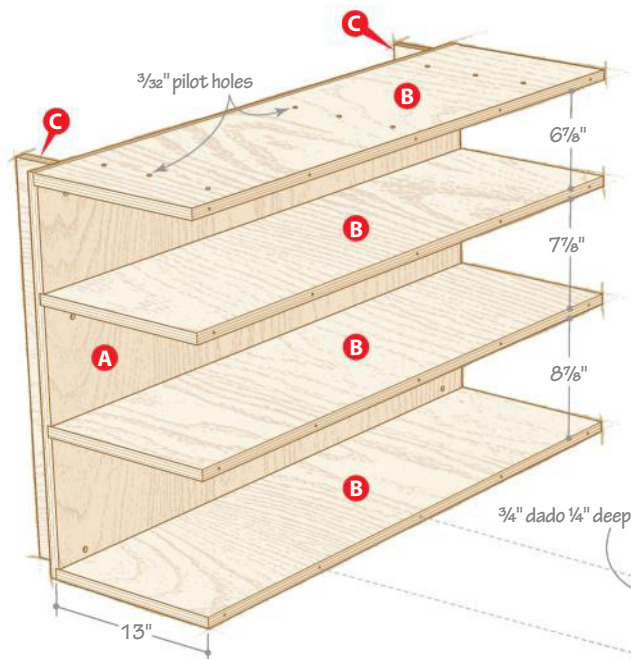
4 Flip the case upside-down and install the casters flush with the ends and edges of the base [Exploded View, Sources].

Now, just wing it

1 Laminate plywood for the pivot arms (E) and legs (F) 2" longer than listed [Drawings 2, 2a]. Square up one end of the laminations.

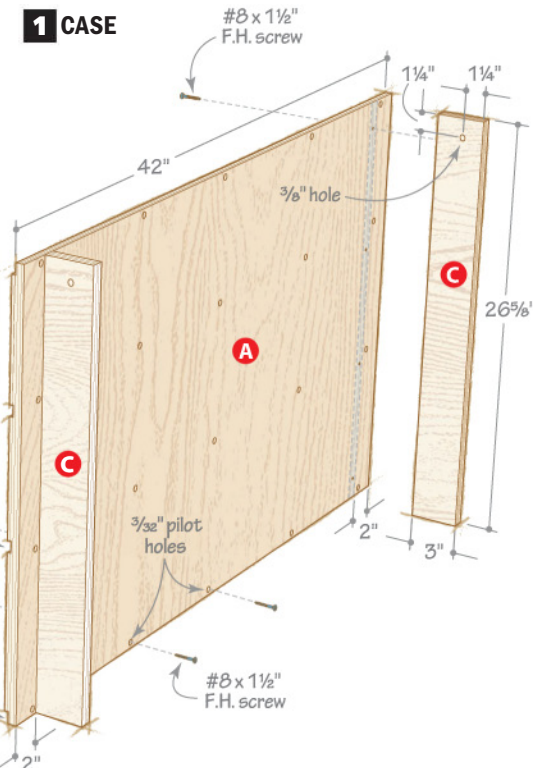
2 Clamp each pivot arm (E) to a case rib (C) and drill the pivot holes [Drawing 1, Photo A]. Then mark the radius [Photo B] and cut and sand it to shape.

3 Crosscut the pivot arms to length, and bevel the ends [Drawing 2a]. Bolt the arms



$\frac{3}{4}$ " rabbet $\frac{1}{4}$ " deep

1 CASE



SKILL BUILDER

Apply a durable finish fast

Shop projects provide a perfect opportunity to practice new techniques. An outfeed table may not require a furniture-grade finish, but it does need a durable one. Here's a finish that provides both looks and durability. You may find you like this technique well enough to use it on furniture, cabinets, and keepsake boxes.

After sanding to 180 grit, brush on a coat of dewaxed shellac to add amber color and protect the plywood from the grain-raising effects of water-based polyurethane. After the shellac dries, spray or brush on three coats of polyurethane, buffing lightly between coats with a 320-grit sanding sponge.



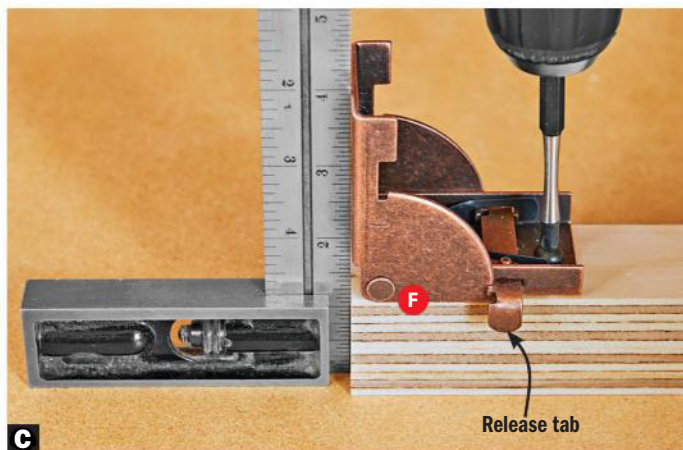
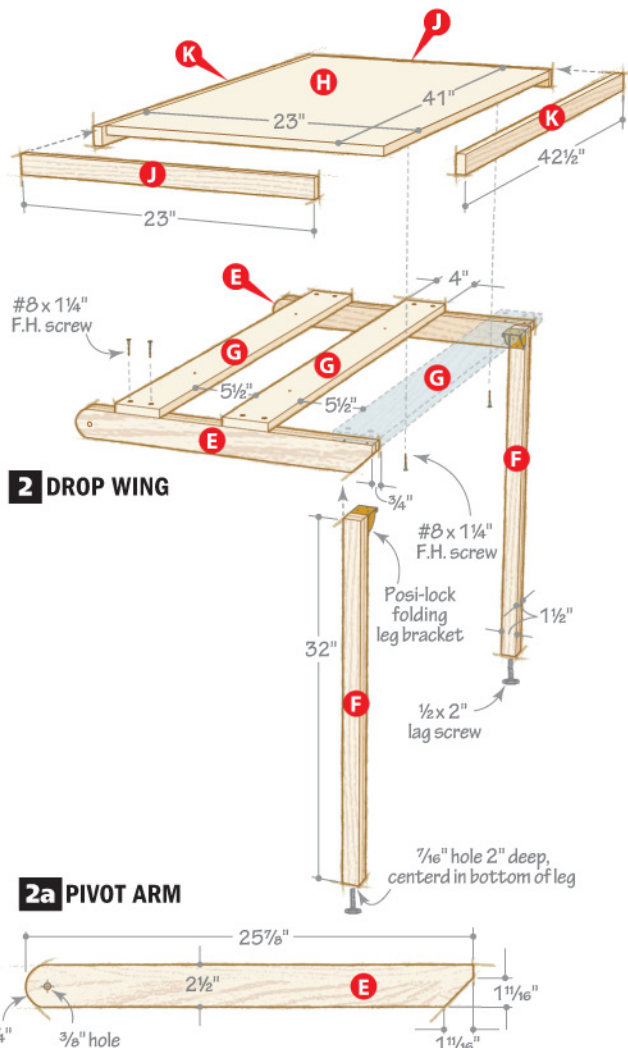
►The arm braces are made from MDF so the combined thickness of the braces and the wing top (H) matches that of the case top (I).

in place temporarily and check that they swing freely and clear the caster bolts.

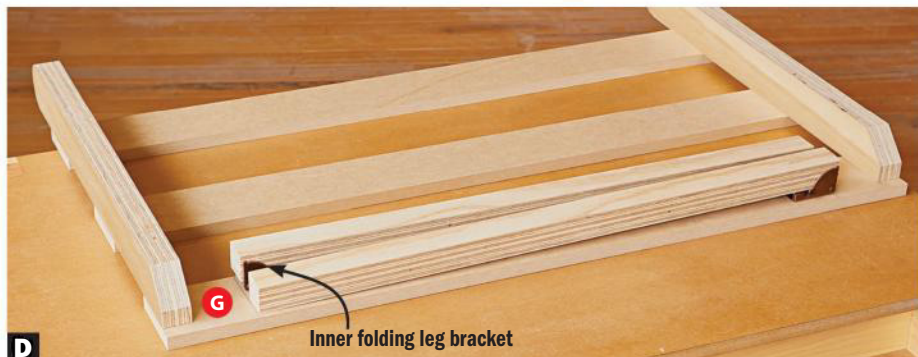
4 Cut the arm braces (G) and glue and screw them to the pivot arms [Drawing 2]. Attach this assembly to the case ribs and, with the arms up and flush with the top of the case, measure from the underside of a brace to the floor. Cut the legs (F) $\frac{1}{2}$ " shorter than this dimension.

5 Attach the folding leg brackets [Sources] to the legs [Photo C] and then to the outer arm brace (G) [Photos D, E].

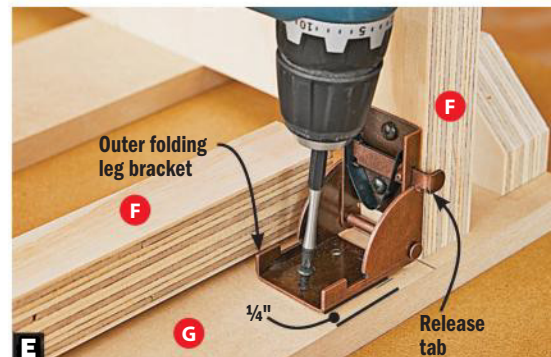
6 Remove the folding leg brackets, and apply finish to the wing and legs. Then bolt the pivot arms to the case ribs (C). Drill a hole centered in the bottom of each leg and install a $\frac{1}{2} \times 2$ " lag screw to serve as a leveler.



C Align the folding leg bracket flush with the end of the leg. Make sure the release tab has room to operate; then, screw the bracket in place.



D Fold the legs to check for clearance and access to the release tabs before screwing the brackets in place. Position the inner bracket flush with the inside edge of the brace (G). The outer bracket sits in $\frac{1}{4}$ " so the release tab sits flush with, or just inside, the outer edge of the brace.



Top it off

- 1 Cut $\frac{3}{4}$ " MDF to size for the top panels (H, I) and laminate the case top [Exploded View].
- 2 Cut the trim pieces (J–M) to fit around each top panel (H, I) and glue them in place [Exploded View, Drawing 2].

SHOP TIP

Installing screws in tight spaces

Most drill/drivers won't fit inside the case to screw the case top in place, especially when you add the length of a bit with a screw balanced on its tip. For tight spots like this, chuck a right-angle adapter in your drill. Purchase an adapter at woodmagazine.com/drill90.



Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A case sides	$\frac{3}{4}$ "	42"	26 $\frac{5}{8}$ "	Ply	2
B case shelves	$\frac{3}{4}$ "	42"	13"	Ply	4
C case ribs	$\frac{3}{4}$ "	26 $\frac{5}{8}$ "	3"	Ply	4
D base	$\frac{3}{4}$ "	42"	20"	Ply	1
E* pivot arms	1 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	25 $\frac{7}{8}$ "	LPly	2
F* legs	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	32"	LPly	2
G arm braces	$\frac{3}{4}$ "	4"	41"	MDF	3
H wing top	$\frac{3}{4}$ "	23"	41"	MDF	1
I case top	1 $\frac{1}{2}$ "	18 $\frac{1}{2}$ "	41"	LMDF	1
J wing-top front/back trim	$\frac{3}{4}$ "	1 $\frac{1}{2}$ "	23"	P	2
K wing-top side trim	$\frac{3}{4}$ "	1 $\frac{1}{2}$ "	42 $\frac{1}{2}$ "	P	2
L case-top front/back trim	$\frac{3}{4}$ "	1 $\frac{1}{2}$ "	18 $\frac{1}{2}$ "	P	2
M case-top side trim	$\frac{3}{4}$ "	1 $\frac{1}{2}$ "	42 $\frac{1}{2}$ "	P	2

*Parts initially cut oversize. See the instructions.

Materials key: Ply-plywood, LPly-laminated plywood, MDF-medium-density fiberboard, LMDF-laminated MDF, P-pine.

Supplies: #8 $\times$ 1 $\frac{1}{4}$ " flathead wood screws, #8 $\times$ 1 $\frac{1}{2}$ " flathead wood screws, $\frac{1}{4}$ -20 $\times$ 1 $\frac{1}{2}$ " hexhead bolts (16), $\frac{1}{4}$ " washers (16), $\frac{1}{4}$ -20 nuts (16), $\frac{3}{8}$ -16 $\times$ 3" carriage bolts (2), $\frac{3}{8}$ " washers (2), $\frac{3}{8}$ -16 lock nuts (2), $\frac{1}{2}$ $\times$ 2" lag screws (2).

Blade: Dado set.

Sources: Cart-King swivel lock 350-lb. casters (2), no. 2370T85, \$24.16 ea.; Cart-King rigid 350-lb. casters (2), no. 2370T62, \$12.04 ea., McMaster-Carr, mcmaster.com.

Posi-lock folding leg bracket, no. 32754, \$10/pair, Rockler, 800-279-4441, rockler.com.

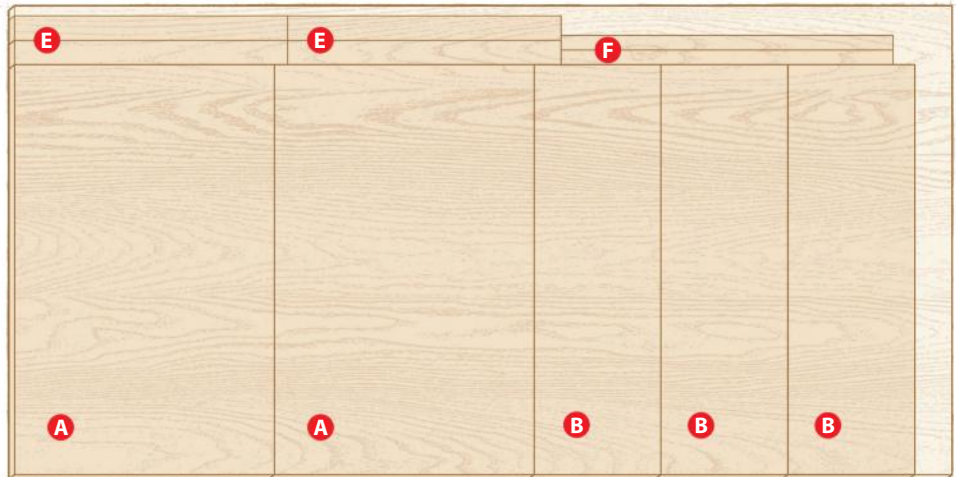
- 3 Apply a finish to each top assembly. Screw the tops in place [Shop Tip, below left] after the finish dries and your outfeed is ready to provide support. 🌲

Produced by **Craig Ruegsegger** with **Joshua Steele**

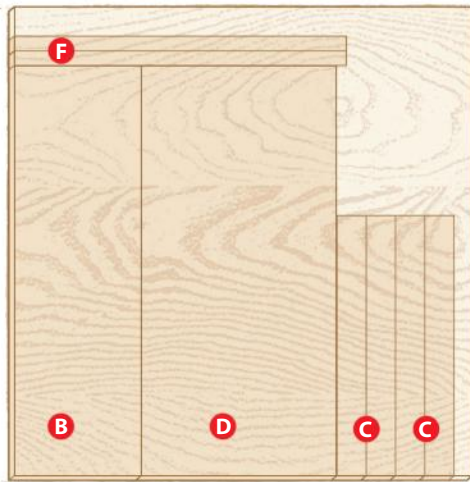
Project design: **John Olson**

Illustrations: **Roxanne LeMoine, Lorna Johnson**

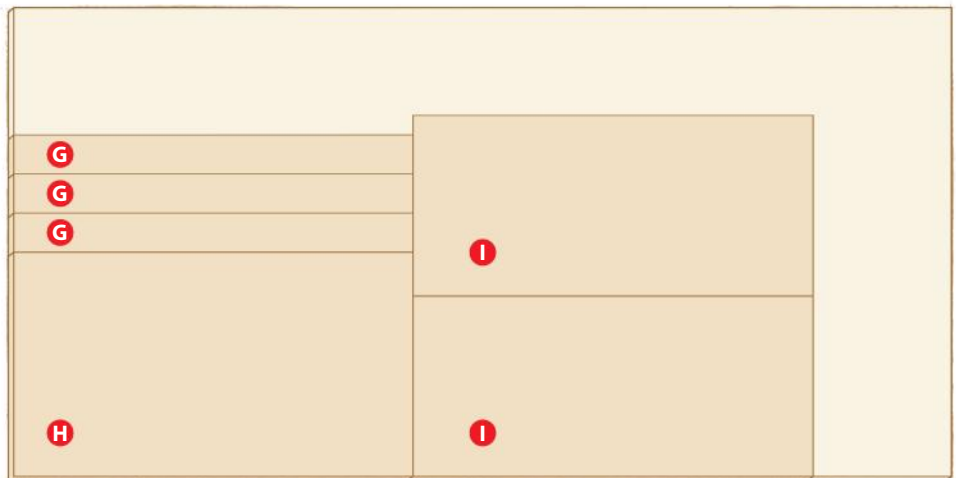
Cutting Diagram



$\frac{3}{4}$ x 48 x 96" Plywood



$\frac{3}{4}$ x 48 x 48" Plywood



$\frac{3}{4}$ x 49 x 97" Medium-density fiberboard



$\frac{3}{4}$ x 5 $\frac{1}{2}$ x 96" Pine

THE ALL NEW CNC SHARK HD4®

INDUSTRIAL PERFORMANCE —
SMALL SHOP FOOTPRINT



The New CNC Shark HD4® features:

- Commercial grade, industrial construction
- Use a 2-1/4HP router or our variable speed, water-cooled spindle
- Perfect for heavy cutting, carving and machining on wood, soft metals or plastics
- Upgraded software is included with Virtual Zero, Auto Piece Alignment, X/Y Homing Switches, Auto Rotation, Edge Detection and more!
- Also available with an extended, 50" base
- User-friendly interface with touch screen, color pendant display



www.NextWaveAutomation.com

Next Wave
Automation

MODEL: DUDSHARP® BENCH STONE

SHARP STARTS HERE.



When sharpness counts, count on DMT®. Our line of sharpeners has the industry's highest concentration of diamonds per square inch, and an unrelentingly flat surface. Precisely engineered to give you excellent results time and again, trust your tools to DMT.



PROUDLY MADE IN THE USA

DMTsharp.com/WOOD
508.481.5944



Charging Station

Take charge of your mobile devices and confine the clutter of cords.



DIMENSIONS:
13" W x 8⁵/₁₆" D x 6" H

Charge up to

6

devices at once using only

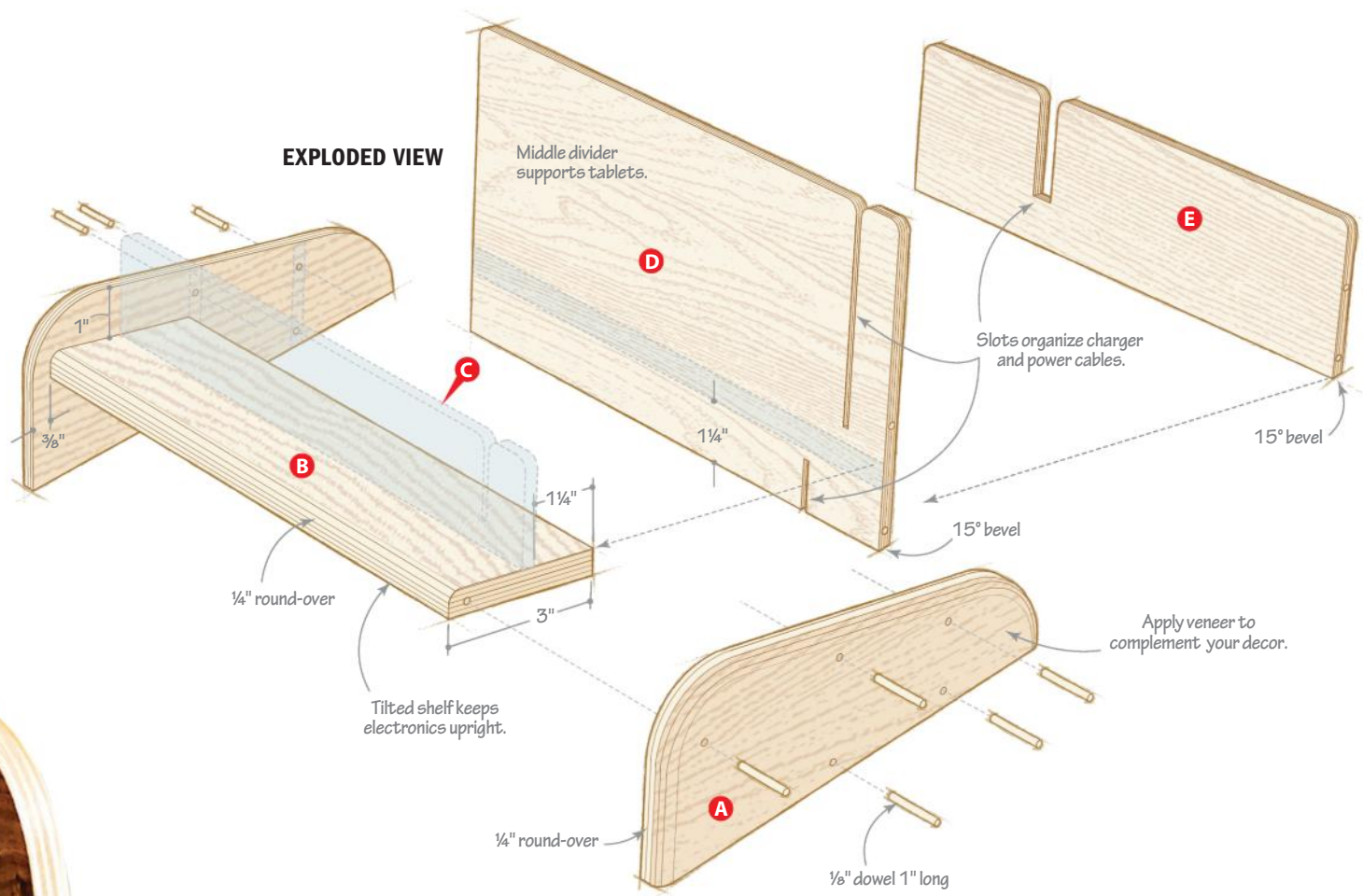
1

outlet

Note: Sizes of power strips vary, so have yours in hand before beginning construction and adjust dimensions if needed. (This compact model has three AC outlets and three USB ports: woodmagazine.com/powerstrip.)



The middle divider hides excess cable length and a power strip that provides plenty of places to plug in your devices.



Start with the sides

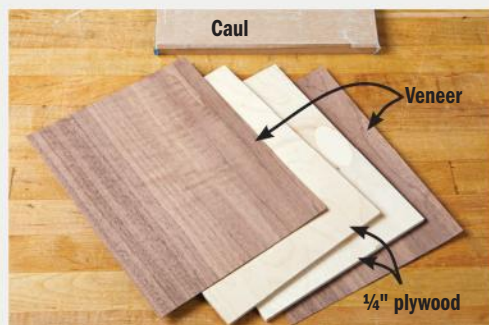
1 Following the **Full-size Pattern** [page 33], mark out two sides (A) on a $5\frac{1}{4} \times 8$ " blank of void-free $\frac{1}{2}$ " plywood [Skill Builder]. Bandsaw the sides, staying just outside the lines.

2 Stick the sides together with double-faced tape and sand to final shape. Separate the sides and mark their best faces as the outside faces.

SKILL BUILDER

Build your own plywood

To get $\frac{1}{2}$ " plywood with attractive edges for the sides (A) and shelf (B), glue up two layers of $\frac{1}{4}$ " Baltic birch plywood. You can leave the plywood natural, or veneer the faces. (We used walnut.)



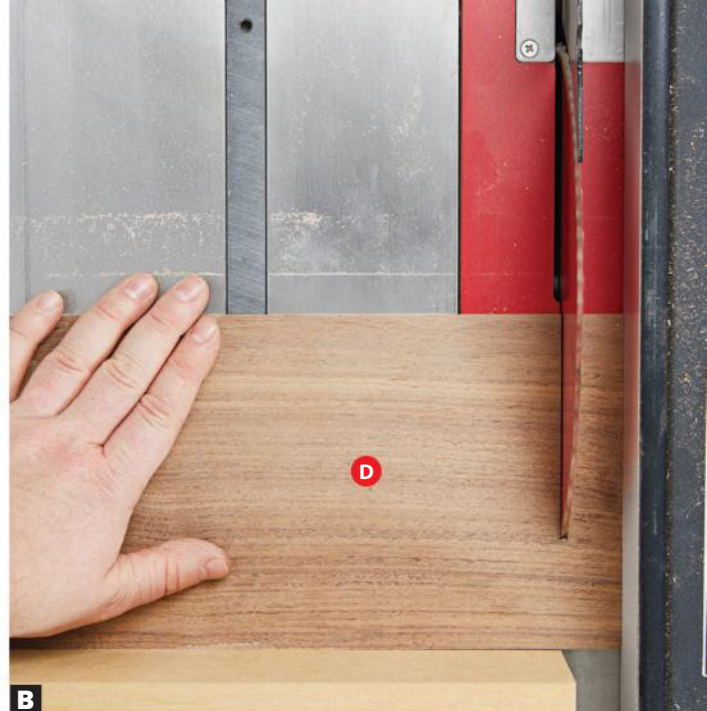
Cut two pieces of plywood and two of veneer, each $\frac{1}{4}$ " wider and longer than the finished part. For cauls, tape waxed paper to two pieces of $\frac{3}{4}$ " MDF $\frac{1}{2}$ " larger than the plywood.



Laminate the two pieces of plywood, keeping their ends and edges flush. Apply an even coat of glue to each face in turn and align the veneer flush with the edges and ends.



Clamp the assembly between the cauls to distribute pressure. Allow the glue to dry overnight, then trim the ends and edges of the blank.



A

Keep the sides in place while routing by placing them on a piece of shelf liner. Hang a small area of the side over the bench to provide bit clearance, rout that area, then reposition the side to continue.

B

Raise your tablesaw blade fully to cut a nearly flat-bottom slot. Bump the saw's stop switch with your leg and wait for the blade to stop before removing the divider.

Tip! Position the slot in the rear divider where it best accommodates the power-strip cord.

3 Cut the shelf (B) to size [Materials List]. Round over the front edge of the shelf and outside edges (but not the bottom) of the sides (A) [Exploded View, Photo A].

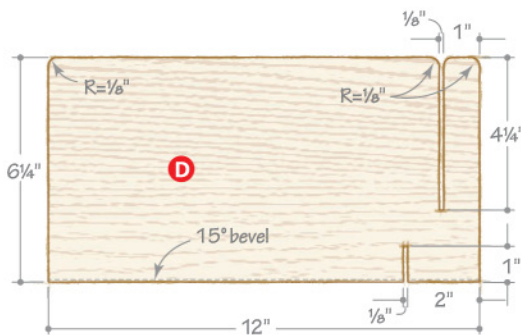
4 Cut the dividers (C, D, E) to size [Drawing 1], beveling the bottom edges of parts D and E. Mark and cut the cord slots [Photo B].

5 File and sand radii on the corners of the slots and top corners of the dividers [Drawing 1, Photo C].

1 DIVIDERS

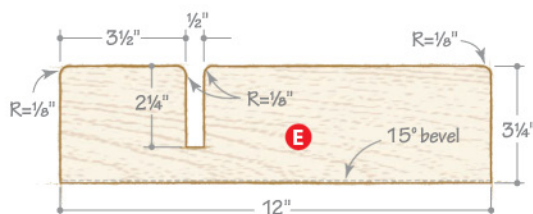


FRONT VIEW



FRONT VIEW

END VIEW



FRONT VIEW



C

Round the bottom of each slot with a round chainsaw file. Use a flat file to radius the outside corners of the dividers and slots.



D

With the wedges flush with the ends of the sides (A), apply glue to the shelf ends, rest the shelf on the wedges, and clamp. Remove the wedges before the glue sets.

Put it together

1 Glue the front divider (C) to the shelf [Exploded View]. Add the middle divider (D) after the glue dries.

Tip! Use the waste area of the **Full-size Pattern** to size the wedges.

2 Cut two 15° wedges from ¼" scrap. Cut away the narrow ends so the remaining wedges support the shelf with the middle divider resting on the bench [Photo D].

3 Cut a spacer ⅛" wider than your power strip and use it to position the rear divider (E) as you glue it in place.

Tip! Use a brad-point bit and sight the bit with the divider to drill straight.

4 Drill holes into the dividers and shelf where shown on the **Full-size Pattern**. Glue in lengths of dowel, then sand them flush with the sides. Apply a finish. (We sprayed on satin-finish aerosol lacquer.) Install the power strip and your station is ready to charge into action. 🌲

► Can't find ⅛" dowels to match your veneer? Dunk bamboo skewers or birch dowels in stain, then touch up the ends after sanding them flush.

Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A* sides	½"	3⅝"	8"	VP	2
B shelf	½"	3"	12"	VP	1
C front divider	¼"	2"	12"	VP	1
D middle divider	¼"	6¼"	12"	VP	1
E rear divider	¼"	3¼"	12"	VP	1

*Parts initially cut oversize. See the instructions.

Materials key: VP-veneered plywood.

Supplies: ⅝"×12" walnut dowel.

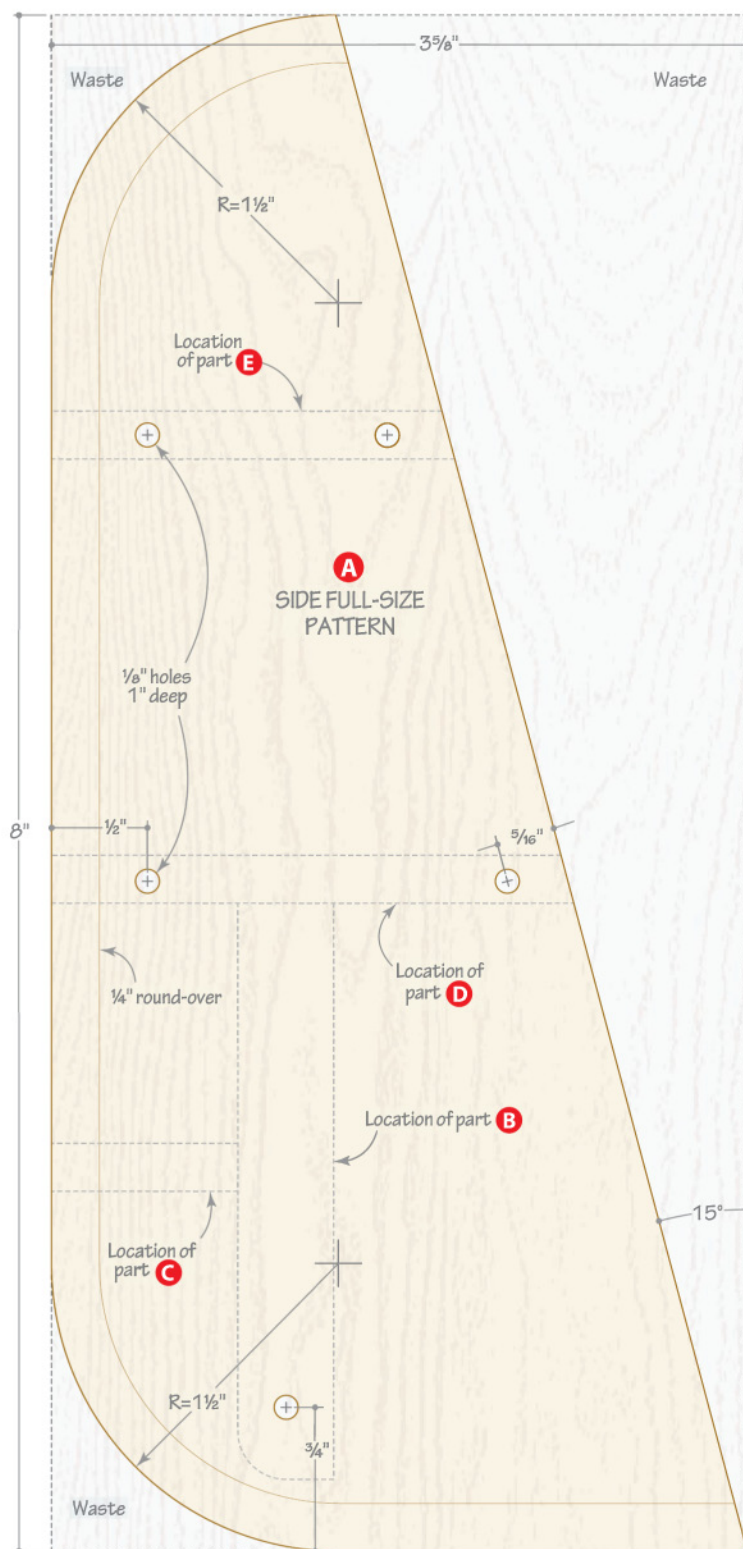
Bit: ¼" round-over router bit.

Produced by **Craig Rueggsegger** with **John Olson**

Project design: **John Olson**

Illustrations: **Roxanne LeMoine, Lorna Johnson**

FULL-SIZE PATTERN



SURVIVAL IN STYLE

SURVIVAL PEN KIT

Patent Pending

- Flint Fire Starter
- Pen Clip Striker
- Emergency Glass Breaker
- Ball Point Pen

To order go to www.bereapenkits.com or call 1.877.736.5487

Berea Hardwoods, Co. Inc.
SINCE 1980

18745 Sheldon Rd • Middleburg Hts., OH 44130 • bereahard@aol.com

BEREA Brand
QUALITY
Berea Hardwoods, Co. Inc.

Move sheet goods with ease – even by yourself!



If you've ever struggled to move a full sheet of plywood around your shop by yourself, our new Material Mate™ Panel Cart and Shop Stand is for you. This rock-solid steel cart has an expanding top frame that lies flat for loading and unloading and tilts to fit through a 30" wide door. Large casters roll over uneven terrain, then lock for stability. Add a top, and you can use it as a shop stand or outfeed cart. It's another way we help you *Create with Confidence!*



Material Mate™
(56889)
\$249.99



EMAIL SUBSCRIBERS

**FREE
SHIPPING
EVERY DAY**
ON \$35+ ORDERS

**Sign up for our emails and
get every day FREE SHIPPING!**

For details go to rcklr.co/228
or call 1-800-279-4441 and mention
code 228 at checkout.

ROCKLER
WOODWORKING AND HARDWARE

Create with Confidence™

For a store near you or free catalog:

Rockler.com

1-877-ROCKLER

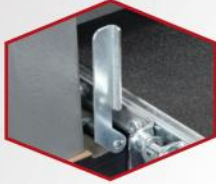
Materials code 228



SuperMax Tools

Superior Quality. Affordable Efficiency.

- 1-3/4 HP TEFC 110V/15A Drive Motor.
- Indexed alignment setting for flawless wide sanding.
- INTELLISAND Technology.
- Easy height adjustment with thrust bearing prevents backlash, slop or creep.
- Drum never goes out of alignment to base.
- Sand as thin as 1/32", as thick as 4", as short as 2-1/4".



Fast Lever makes it easy to change alignment settings for narrow and wide stock.



Easiest access to abrasive fastening system of any drum sander!



**25-50
DRUM SANDER**



**19-38
DRUM SANDER**

- Please visit SuperMaxTools.com for full specs and distributor locations.

SANDING SIMPLIFIED.

P. 888.454.3401
F. 651.454.3465

SuperMaxTools.com
sales@SuperMaxTools.com



LUMBER YOU'LL LOVE

No Minimum Order • Friendly Service

**Massive Selection of
Domestics & Exotics**

**Walnut
Cherry
Maple
Oak**

**Mahogany
Purple Heart
Zebrawood
+ more**

**100%
Satisfaction
Guarantee
Every Order**



www.101Woods.com

Toll Free 800-423-2450



SHOP TEST:

Dust Collectors

Make one of these machines a priority for a cleaner shop and healthier you.



Woodworkers often think of adding a dust collector only after purchasing their shop's essential machinery. But we encourage you to consider new or upgraded dust collection now, regardless of your current tool lineup. Hooking up your dust- and chip-making machines to a collector reduces your time spent cleaning, as well as—hopefully—the amount of fine dust that lingers in the air before eventually settling.

A fully ducted system with a large collector might be a luxury outside your budget. Fortunately, smaller, portable single-stage collectors can do the job well, and go easy on the wallet, too. These machines connect directly to a tablesaw, bandsaw, thickness planer, or other machine, typically with flex-hose. (See *Stage Coach: Know the D.C. Difference*, next page.)

We tested eight single-stage dust collectors priced from \$325 to \$850, including one unit with both bag and canister filter options. Here's what we found.

Airflow starts the process...

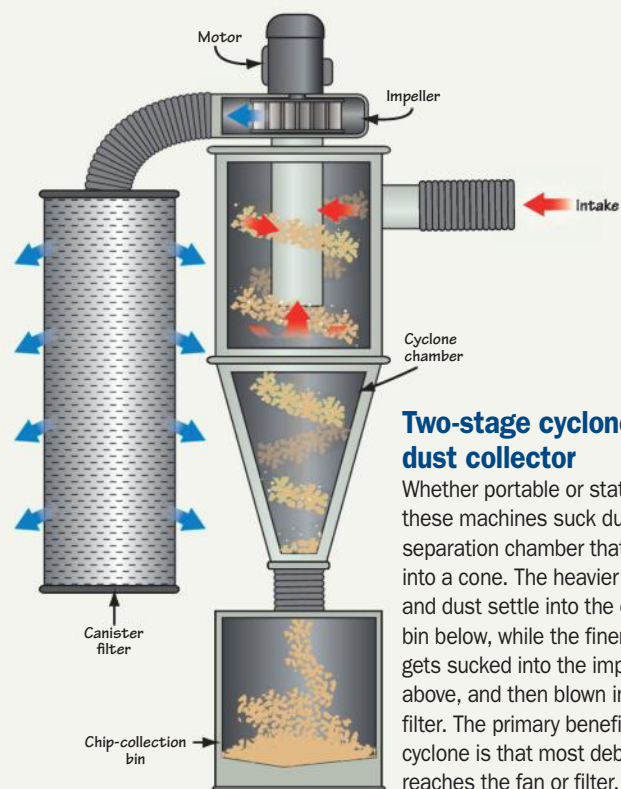
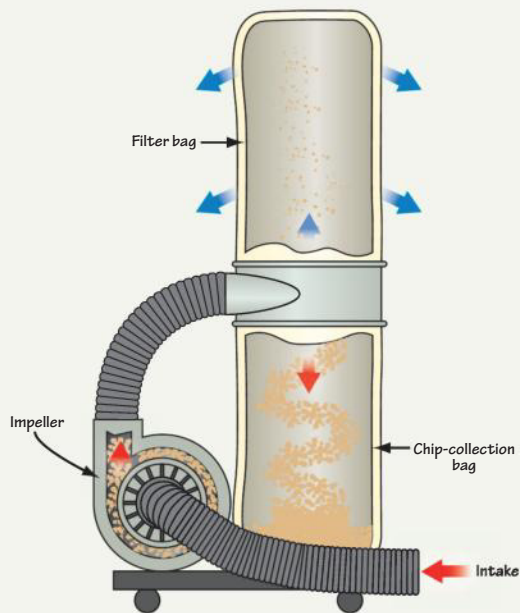
The volume of airflow generated by a dust collector is expressed in cubic feet per minute (cfm), the industry specification for measuring a collector's ability to gather debris.

Meanwhile, resistance against airflow is measured in inches of static-pressure loss (sp). As you add more resistance (ribbed

Stage Coach: Know the D.C. Difference

Single-stage dust collector

These collectors draw debris directly into the impeller (fan), which blows it into the adjacent filter/collection cylinder. The heavier chips and dust settle into the collection bag, while the finer dust rises to the filter media (bag or canister) above, where it either gets trapped or, worst case, passes through the filter and returns to the shop air.



Two-stage cyclone dust collector

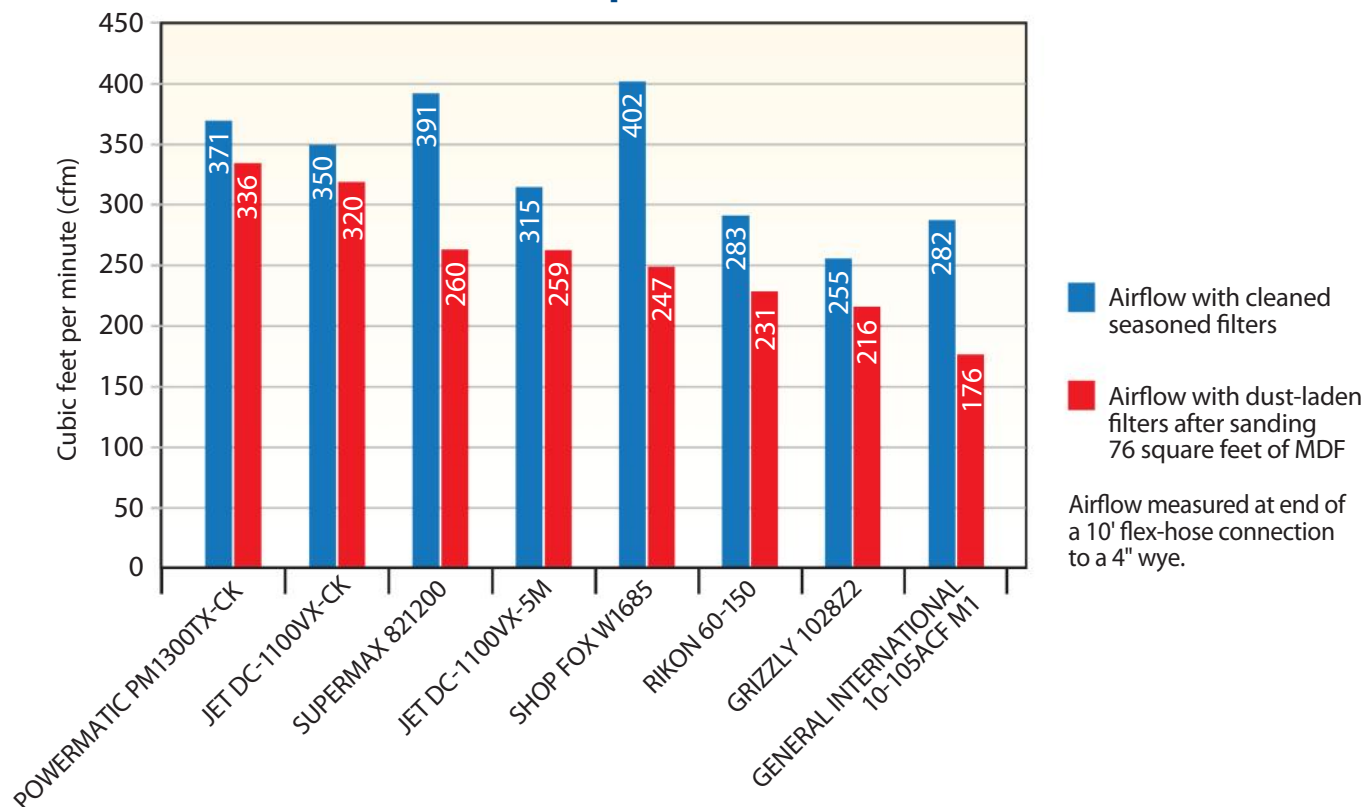
Whether portable or stationary, these machines suck dust into a separation chamber that tapers into a cone. The heavier chips and dust settle into the collection bin below, while the finer dust gets sucked into the impeller above, and then blown into the filter. The primary benefit with a cyclone is that most debris never reaches the fan or filter.

flex-hose, elbows, reducers, etc.), you reduce the airflow through the duct, and thus, the collector's ability to efficiently move debris.

Using a pitot tube, manometer, and smooth-wall metal duct, we measured each collector's maximum cfm performance at various levels of static-pressure loss. Using that information, we generated fan curves for each unit. Download our fan curve chart at woodmagazine.com/dcfancurves.

Although a fan curve provides important data, it's hard to translate that information into performance in the shop. So, we also used a 10' length of 4" flex-hose to hook each collector to a tablesaw, bandsaw, planer, and drum sander to gauge their effectiveness in actual-use scenarios. Six of the eight models have 6" inlets—the Rikon 60-150 and Supermax 821200 have 5" inlets—but all come with a 4" wye, letting you more easily connect to the 4" ports common to most woodworking machines.

Dust buildup diminishes airflow



As you can see in the airflow chart above, collectors perform disparately in the same woodworking scenario (collecting dust from a drum sander, in this case). The Powermatic PM1300TX-CK and Jet DC-1100VX-CK maintained most of their cfm as dust built up in their canister filters. Conversely, the Supermax 821200, Shop Fox W1685, and General International 10-105ACF M1 dropped off substantially with dust buildup. With these three machines, it's important to knock dust from the filter media more frequently to maintain adequate airflow.

Generally, it takes at least 400 cfm to keep dust and chips suspended in ductwork. We found lesser numbers workable, but only in 10' or less of duct. Follow these best practices to maximize airflow:

- Flex-hose quickly robs a collector of cfm, so use segments as short as possible. Actual cfm numbers with even a short piece of flex-hose measured about one-half to one-third of the ratings specified by manufacturers.
- If using two runs of flex-hose on the wye, install a blast gate on each line so you can



A cone-shaped diverter inside the Jet and Powermatic collectors forces debris toward the outer rim as it enters the separation chamber, better slowing down and settling heavier particles into the collection bag, rather than clogging the filter.

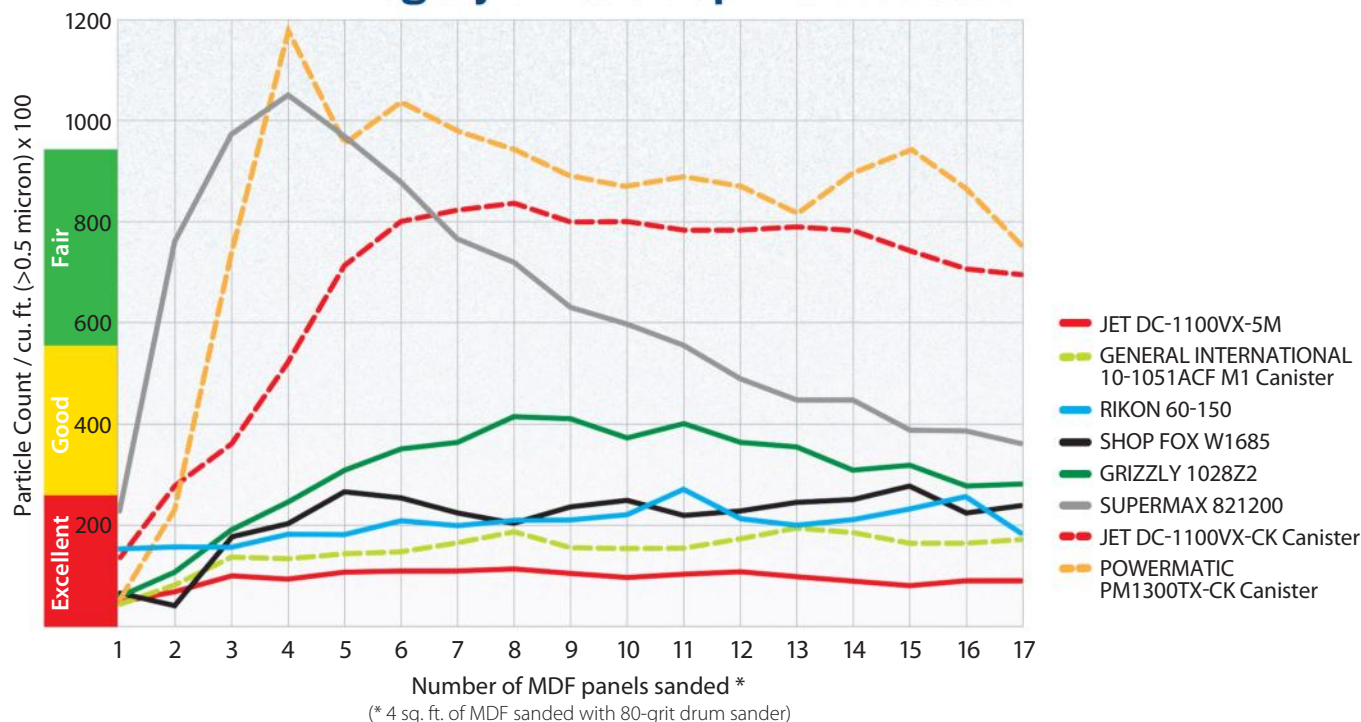


Powermatic's metal chute streamlines the path to the separation chamber for debris. We believe this helped this unit produce the highest airflow of the group.



The connector hose on some models adds resistance under pressure by forming a sharper bend. To maximize airflow, trim the hose as short as possible.

Bag-style filters trap fine dust best



shut down the one not in use to maximize airflow through the hose being used.

► Planer chips will more likely hang up in flex-hose than will dust with one of these collectors. If you notice this happening, shorten your hose or eliminate bends in it.

► As dust builds up and seasons the filter, cfm will drop. Even if you knock dust from the filter, it will never return to its out-of-the-box airflow performance.

...and filtration completes it

Getting the debris to the collector is only half the battle. The other half—filtering out the fine dust and returning clean air to the shop—proves more challenging. Thankfully, nearly all dust collectors today come with a filter rated to trap most dust particles 5 microns or larger. Better still, six of the eight test models claim to trap nearly all particles as small as 1–2.5 microns. The most damaging particles are those smaller than 10 microns, because they stay suspended in the air longer, where you can inhale them. These tiny particles are also the most difficult for your lungs to expel. (See the chart on page 41 for each machine's filter-efficiency rating.)

To equally evaluate each collector's filtering ability, we used a Dylos particulate meter to measure air quality before, during, and after each test. This sensitive meter detects particles as small as 0.5 micron.

As you can see in the chart above, some machines fared better than others, with bag

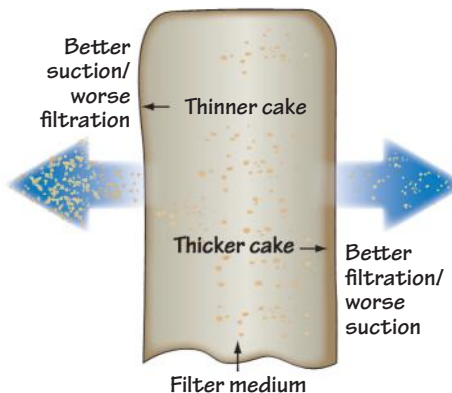
filters generally outperforming canisters. The Jet DC-1100VX-5M, using a 5-micron bag filter, excelled by keeping the most fine dust trapped. The General International led all canister-filter models, finishing second only to the Jet DC-1100VX-5M. To be fair, all eight machines' performance exceeds industrial regulatory standards established by the National Institute for Occupational Safety and Health (NIOSH).

The buildup of a dust cake, shown below, helps all filters trap more dust, but at the expense of airflow. So, over time, you'll have to get a feel for how your collector performs: As collection seems to drop off, clear some of the dust from the filter to improve airflow. We found that cleaning a canister filter reduced its filtering ability until a dust cake

► Want to test the air quality in your shop? Get the same particulate meter we used: Dylos DC1100 Pro, \$260, 877-351-2730, dylosproducts.com.

► One micron equals .001 millimeter. For comparison, human hair typically measures about 40–60 microns in diameter.

Dust buildup helps trap dust, but lessens suction





We prefer the hoop-style band that holds the collection bag tightly against the inside of the collector's rim because it's easy to remove and install, and doesn't leak. This type is found on both Jets, Powermatic, and Supermax.



Four models use traditional band clamps that fit into a depression around the outer rim to secure the bag. Small clips hold the bag in place while you affix the clamp on the General International and Grizzly models. With the Rikon and Shop Fox models you must use tape to hold the bag initially.

built up again, but not as noticeably with bag filters. And lower airflow means more dust at the source will likely get into the shop's air.

We also discovered that each machine had small leaks where dust escaped, sometimes particles so tiny we couldn't see them, but could feel the air movement. Before beginning our "official" testing, we sealed up leaks around metal seams and welds with silicone sealant or duct tape, and used adhesive-backed foam weather stripping to improve the seal around bag rims.

More factors to consider

► **Removing/installing bags.** All eight machines use plastic collection bags. Although they're meant to be disposable, they're thick enough that you should be able to dump the debris and reuse them several times. Before removing a collection bag, knock dust loose from the filter bag (or turn the beater on a canister) to prevent big globs of dust falling out while you're working on the lower bag.

Filter or collection-bag clamps must hold securely in place while maintaining a tight seal against dust leaks. But these should also be user-friendly, and some simply are not. (See the chart on the *next page*.) The Jet and Powermatic machines use setscrews to hold their canisters tight to the rim, and interior hoops to hold the collection bags (*top left*). Other models use band clamps (*top right*) to hold their collection bags and filters in place.

► **Dual positions.** The Supermax collector, shown *above right*, differs from the others in that its impeller sits in the same housing that supports the bags. But empty bolt holes in our unit leaked air until we covered them with tape or plugged them with bolts.

► **Portability.** All the collectors have four swiveling casters for mobility, but the sturdy Powermatic, with bolt-on handles, proved easiest to move around the shop.



By flipping the Supermax blower housing top for bottom, you can position the air inlet up or down to better suit the flex-hose or duct running to your machines.

► **Remote control.** Only the Powermatic comes with a remote control, letting you activate it without having to bend down and trigger the power switch. It's an infrared model, so you have to point it directly at the machine to make it work. If you want a remote for the other models, you'll have to buy an aftermarket remote control accessory (\$50–\$80) into which you plug your collector.

► **Noise.** All the collectors measured between 73 and 82 decibels, below the level where NIOSH recommends you wear hearing protection. But with no other machine running, the constant droning of the collector might prove too annoying to just let it run when you're in the shop.

► **Warranty.** We always appreciate a lengthy warranty, but these dust collectors have few parts that can go bad (motor, impeller bearings). We're not saying you should dismiss the warranty altogether, but don't make it a huge part of your buying decision.

► Read reviews of other dust collectors and dust-collection accessories at woodmagazine.com/toolreviews.

Produced by **Bob Hunter** with **Tom Brumback**
Illustrations by **Kurt Schultz** and **Tim Cahill**

Dishing the Dirt on Dust Collectors

MODEL	PERFORMANCE RATINGS (1)					MOTOR							OVERALL DIMENSIONS, INCHES (W x D x H)	ACCESSORIES		NOISE LEVEL, DECIBELS	CORD LENGTH	WARRANTY, YEARS (3)	COUNTRY OF ASSEMBLY (4)	SELLING PRICE (5)	CONTACT INFORMATION
	PRIMARY		SECONDARY			STANDARD								OPTIONAL							
	AIRFLOW	FILTRATION EFFECTIVENESS	EASE OF CLEANING FILTER	EASE OF EMPTYING COLLECTION BAG	MOBILITY																
						HORSEPOWER RATING	MAXIMUM AMP DRAW (MEASURED)	IMPELLER FAN DIAMETER, INCHES	INLET DIAMETER, INCHES (2)	FILTER TYPE (BAG, CANISTER)	RATED FILTER EFFICIENCY, MICRONS										
GENERAL INTERNATIONAL 10-105ACF M1	C	A	A	B	A-	1.5	14.3	12¾	6	C	1	38×21½×71	3 plastic bags	Radio-frequency remote control, duct fittings, .3-micron HEPA filter	76	6'	L	T	\$680	888-949-1161 general.ca	
GRIZZLY G1028Z2	C+	B+	B	B	A-	1.5	13	12¾	6	B	2.5	37×22×77	1 plastic bag	Duct fittings, radio-frequency remote control	74	6'	1	T	\$335	800-523-4777 grizzly.com	
JET DC-1100VX-5M	B+	A	B	A	A-	1.5	11.6	11	6	B	5	38½×22×79	5 plastic bags	Radio-frequency remote control	74	6'	5	T	\$550	800-274-6848 jettools.com	
JET DC-1100VX-CK	A	C	A	A	A-	1.5	11.6	11	6	C	2	38½×22×69	5 plastic bags	Radio-frequency remote control	75	6'	5	T	\$700		
POWERMATIC PM1300TX-CK	A	C-	A	A	A	1.75	14	12	6	C	2	39×22×71	3 plastic bags, infrared remote control	Duct fittings	82	6'	5	T	\$900	800-274-6848 powermatic.com	
RIKON 60-150	C	A-	B	C	A-	1.5	11.8	10	5	B	5	36×22×78	1 plastic bag		73	6'	5	C	\$380	877-884-5167 rikontools.com	
SUPERMAX 821200	A-	B	B	A	A-	1.5	16.5	11½	5	B	2.5	39×19×81	3 plastic bags, 4" x 6' flex-hose		75	8'	3	T	\$450	888-454-3401 supermaxtools.com	
SHOP FOX W1685	A-	A-	B	C	A-	1.5	15.5	12	6	B	2.5	38×22×77	1 plastic bag	Duct fittings	81	8'6"	2	C	\$405	800-840-8420 shopfox.biz	

- Excellent
 Good
 Fair
- All units include a 4" plastic wye
- (L) Lifetime, except for commercial applications
- (C) China
(T) Taiwan
- Prices current at time of article production and do not include shipping, where applicable.

Put your money where the dust doesn't blow

We placed a premium on filtration and airflow, and made the other characteristics of the dust collectors a lesser priority. Although we liked nearly everything about the Powermatic PM1300TX-CK, we can't reward its ineffective filtering ability. So our Top Tool nod goes to the Jet DC-1100VX-5M (\$550) and the Shop Fox W1685 (\$405). These models best combined airflow with excellent filtration.

Our Top Value award goes to the Grizzly G1028Z2. Selling for \$70 less than the Shop Fox, it produced results nearly as good. 🌳



Jet DC-1100VX-5M



Shop Fox W1685



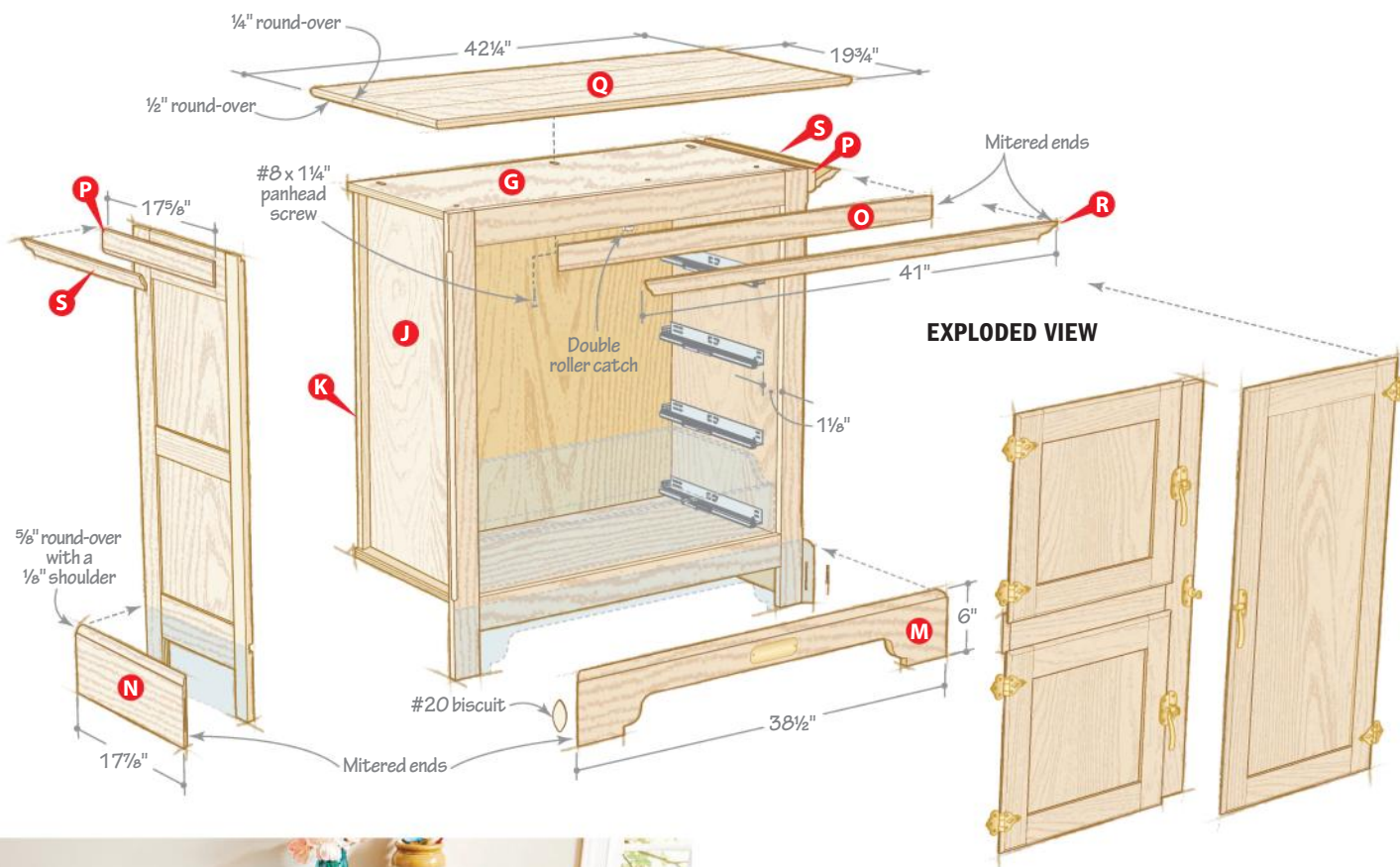
Grizzly G1028Z2

One cool chest of drawers

Icebox Redux

It looks like an old-fashioned icebox, but instead of cubby-hole-size doors and a cramped interior, the entire front opens to reveal a bank of full-width drawers.





DIMENSIONS:
42 1/4" W x 19 3/4" D x 40 5/8" H
Approximate
lumber cost
\$250
2 doors
4 drawers
6.2 cubic feet of storage

Note: The sides protrude beyond the carcass top and bottom (G) at the rear, creating a recess for the back.

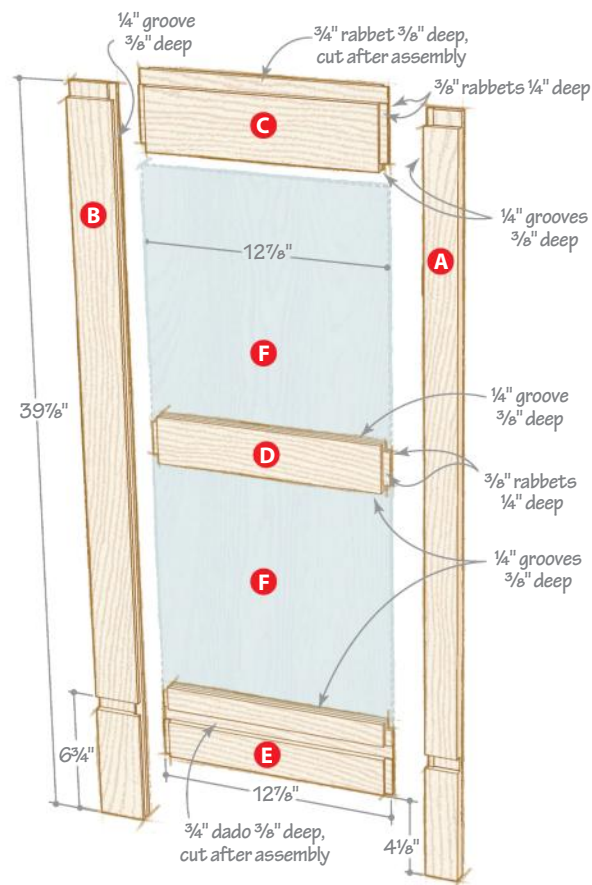
Enhance your vintage-style kitchen with this new take on a classic icebox. It's equally at home in the dining room filled with table linens or in the bedroom cooling off some hot lingerie.

Build the carcass

1 Cut the carcass rails and stiles (A–E) to size [Materials List]. Groove the edges of each part to match the thickness of the side panels (F) [Drawing 1]. Rabbet the rail ends to form mating stub tenons.

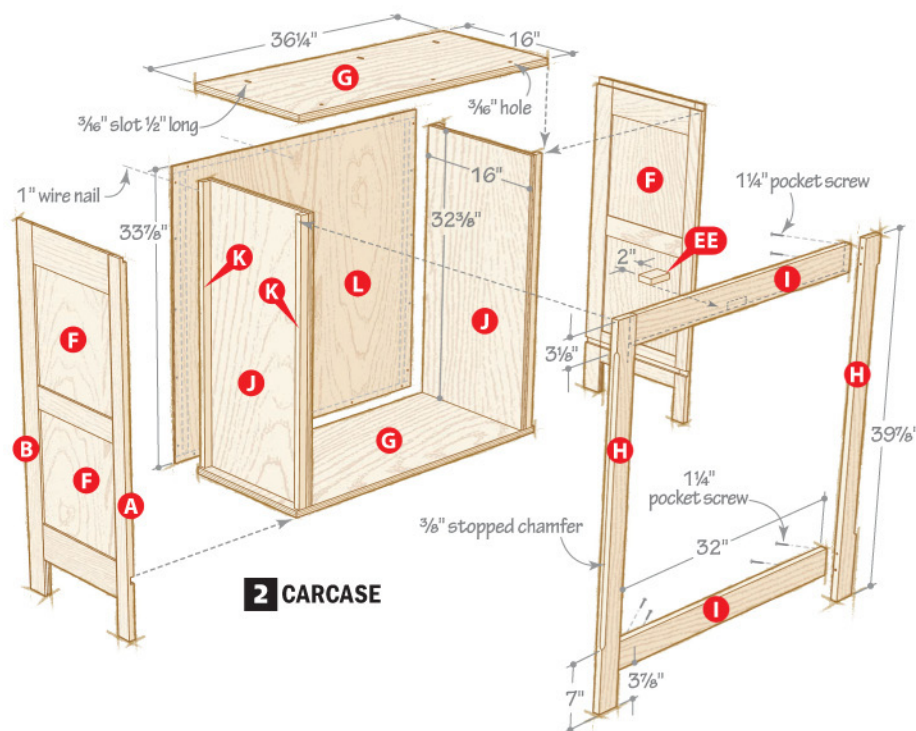
2 Cut and finish-sand the side panels (F). Glue and clamp one right-hand and one left-hand side. Cut the carcass top and bottom (G). Then rabbet and dado each side to match the thickness of the top and bottom.

1 SIDE ASSEMBLY (Inside of right side shown)





A Measure the carcass diagonals to check for square. Equal dimensions ensure a trouble-free assembly of the carcass and its adjoining parts.



2 CARCASS

Tip! It's a good idea to dry-assemble your project as you complete the various parts and before you apply the finish. This way adjustments can be made without ruining the finish.

3 Drill holes and slots [Drawing 2] for attaching the top (Q) later. Glue up the carcass with the front edges of the top, bottom, and sides flush [Photo A].

4 Cut the face-frame stiles and rails (H, I) and pocket screw them together [Drawing 2]. Mount the face frame [Photo B]. Flush-trim and chamfer the stiles.

5 Cut the liners (J) and spacers (K). Glue and clamp the spacers to the liners [Drawing 2]. Finish-sand the liners and install the liner/spacer assemblies [Photo C].

6 Cut the back (L), ensuring it fits between the sides and aligns flush with the outer faces of parts G at top and bottom. Set the back aside.

Tip! To ensure that the liner faces and stile edges align, place a liner against the inside of the carcass side and measure from the liner face to the stile edge. Cut the spacers (K) to this width.



B Glue and clamp the face frame to the carcass, flush at the top and with the stile edges equally overhanging the sides. The lower rail protrudes 1/8" above the carcass bottom (G).



C Glue and clamp the liner assemblies to the carcass with the liner front edges against the backs of the face-frame stiles (H).

Note: With the top (Q) fixed at the front of the carcass, it can't move.

So continuously glue the crown front to both the top and the crown base front (O). The crown sides (S) must allow the top to move, so continuously glue the crown sides to the crown base sides (P) but apply glue only to the front 6" of the crown where it meets the top.

Tip! Crown molding can be difficult to clamp, so use a 23-gauge pin nailer to hold it in place until the glue dries.

Add the base and top

1 Cut the base front and sides (M, N) to width, rout the round-over [Drawing 3], and miter-cut them to length [Exploded View]. Cut biscuit slots in the miter faces. Referring to Drawing 3, lay out the pattern on the base front, then jigsaw and sand it to shape. Glue and clamp the base front and sides to the carcass.

2 Cut the crown base front and sides (O, P) to width and miter-cut them to length. Rout the round-overs [Drawing 4]. Glue and clamp the crown bases to the carcass [Exploded View].

3 Glue up a blank for the top (Q) and cut it to size. Finish-sand both faces and rout the profile on the ends and front [Drawing 4]. Install the top, flush with the rear edges of the sides and centered side-to-side, with screws (no glue) driven from inside the carcass [Exploded View].

4 Miter-cut the crown front and sides (R, S) to length [Exploded View]. (We purchased crown molding rather than making it ourselves.) Install the crowns.

Make the drawers

1 Cut the drawer sides (T). Cut both the drawer fronts (U) and drawer backs (V) to the size listed for the drawer backs.

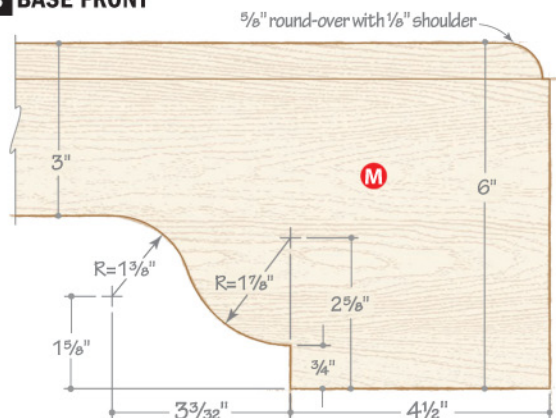
2 Rout half-blind dovetails in the drawer parts [Drawing 5]. (We used a dovetail jig with $\frac{7}{8}$ " center-to-center pin spacing.)

3 Lay out and jigsaw the ogee curve on one side [Drawing 5a] and sand it smooth. Use this side as a pattern to mark and shape the remaining sides. Dry-assemble one front and one side, mark the finished width on the front, and cut all the fronts to that width.

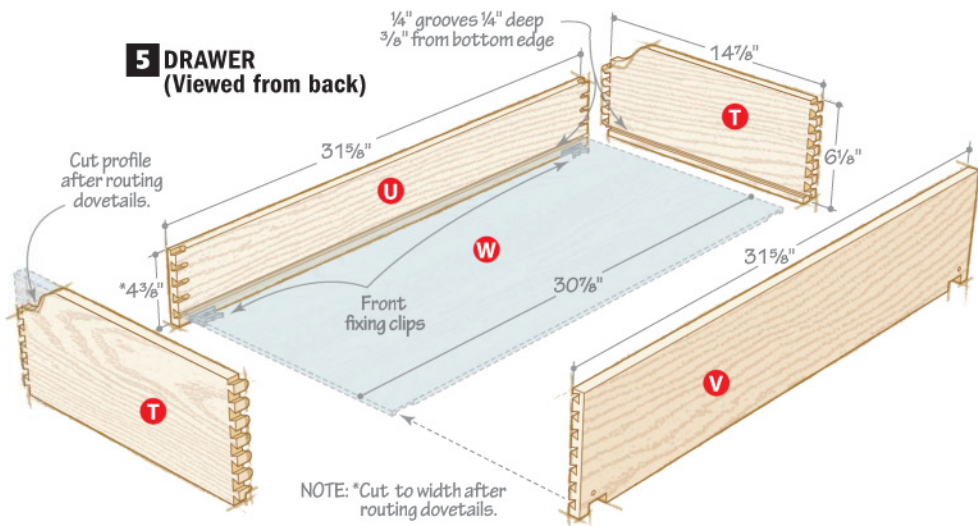
4 Groove the drawer parts to accept the bottoms (W) [Drawing 5]. Cut the bottoms, finish-sand the parts, and assemble the drawers. Notch and drill holes for the drawer slides [Sources] in the backs (V) [Drawing 5b]. Set the drawers aside.

► Learn about using a dovetail jig.
woodmagazine.com/dovetailvid

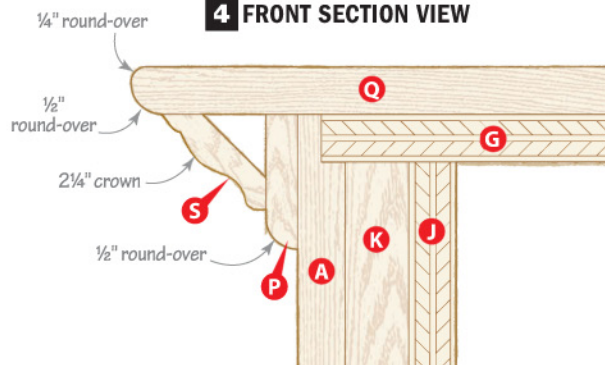
3 BASE FRONT



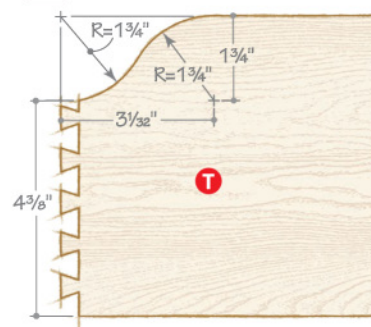
5 DRAWER (Viewed from back)



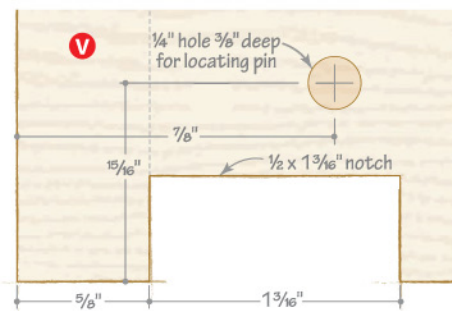
4 FRONT SECTION VIEW

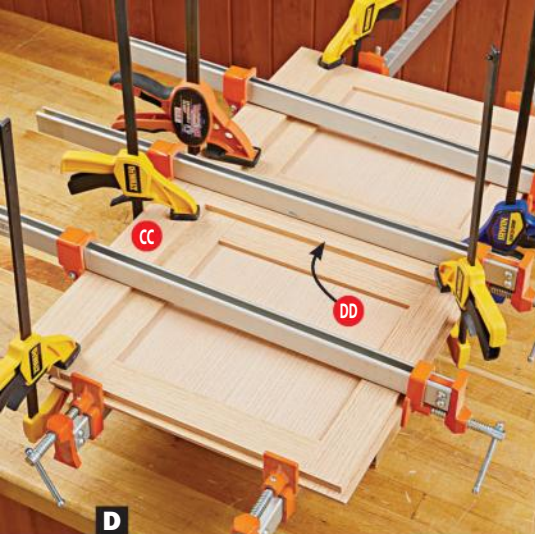


5a DRAWER SIDE



5b DRAWER BACK DETAIL

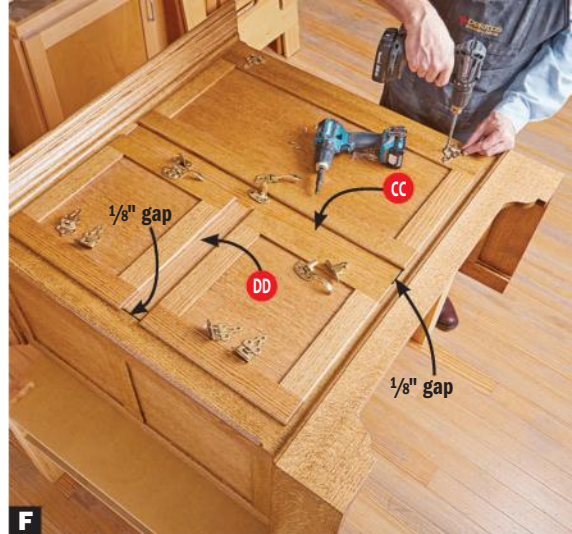




D Seat the stile (CC) and rail (DD) in the door rabbets and lightly clamp them in place. Apply bar clamps to eliminate gaps. Then tighten the initial clamps.

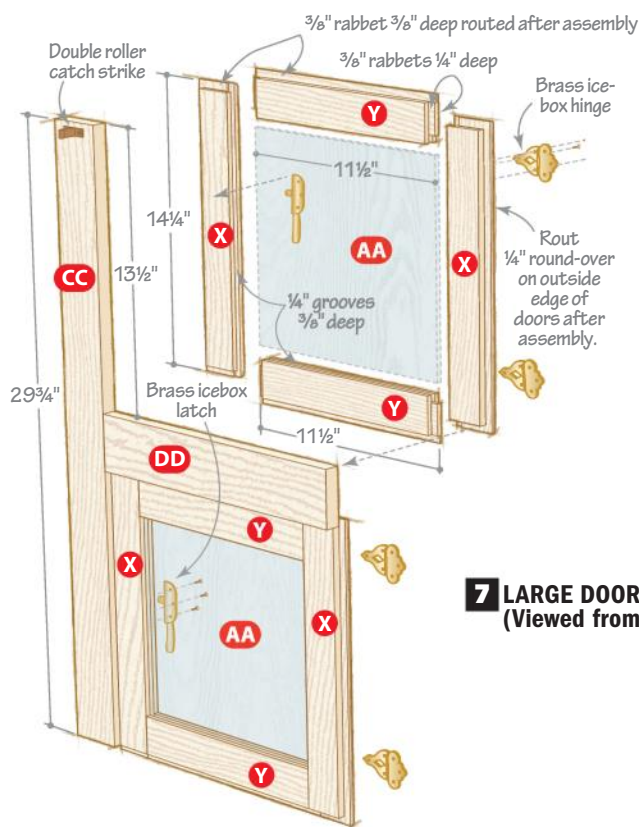


E Rest the cabinet member of a drawer-slide on the spacer. Screw the slide to the liner (J). Repeat on the other side.

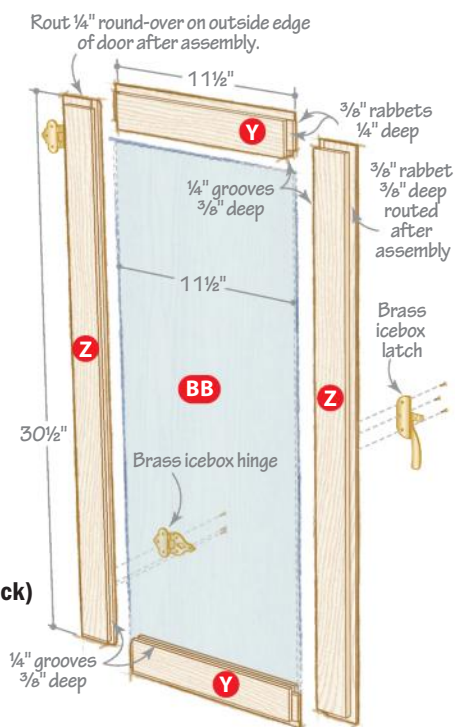


F With the cabinet on its back, align the doors and install the hardware. Leave $\frac{1}{8}$ " gaps between the face frame and the ends of the center stile (CC) and mid rail (DD).

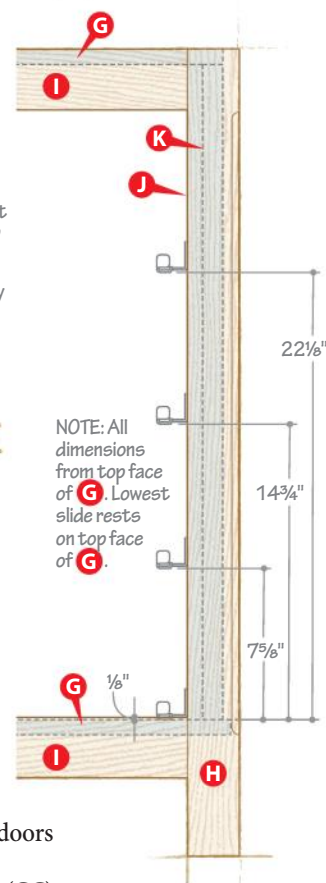
6 SMALL DOOR ASSEMBLY (Viewed from back)



7 LARGE DOOR (Viewed from back)



8 DRAWER SLIDES



NOTE: All dimensions from top face of **G**. Lowest slide rests on top face of **G**.

Build the doors

1 Cut the door stiles and rails (X-Z). Groove the stile and rail edges to match the thickness of the door panels (AA, BB) [Drawings 6 and 7]. Rabbet the ends of the rails to form mating stub tenons.

2 Cut the small door panels (AA) and large door panel (BB) and finish-sand them. Glue and clamp the doors, check them for square, and place them on a flat surface to

dry. Rabbet and round over all three doors where shown.

3 Cut and finish-sand the center stile (CC) and mid rail (DD). Glue and clamp the small door assembly [Drawing 6, Photo D].

4 Cut and glue the catch block (EE), centered, to the upper face-frame rail (I) [Drawing 2].

Finish it up

1 Finish-sand where needed; then, apply a finish. (We stained everything but the

drawers with Varathane Golden Oak, let it dry for 48 hours, and then applied water-based satin polyurethane to all parts.)

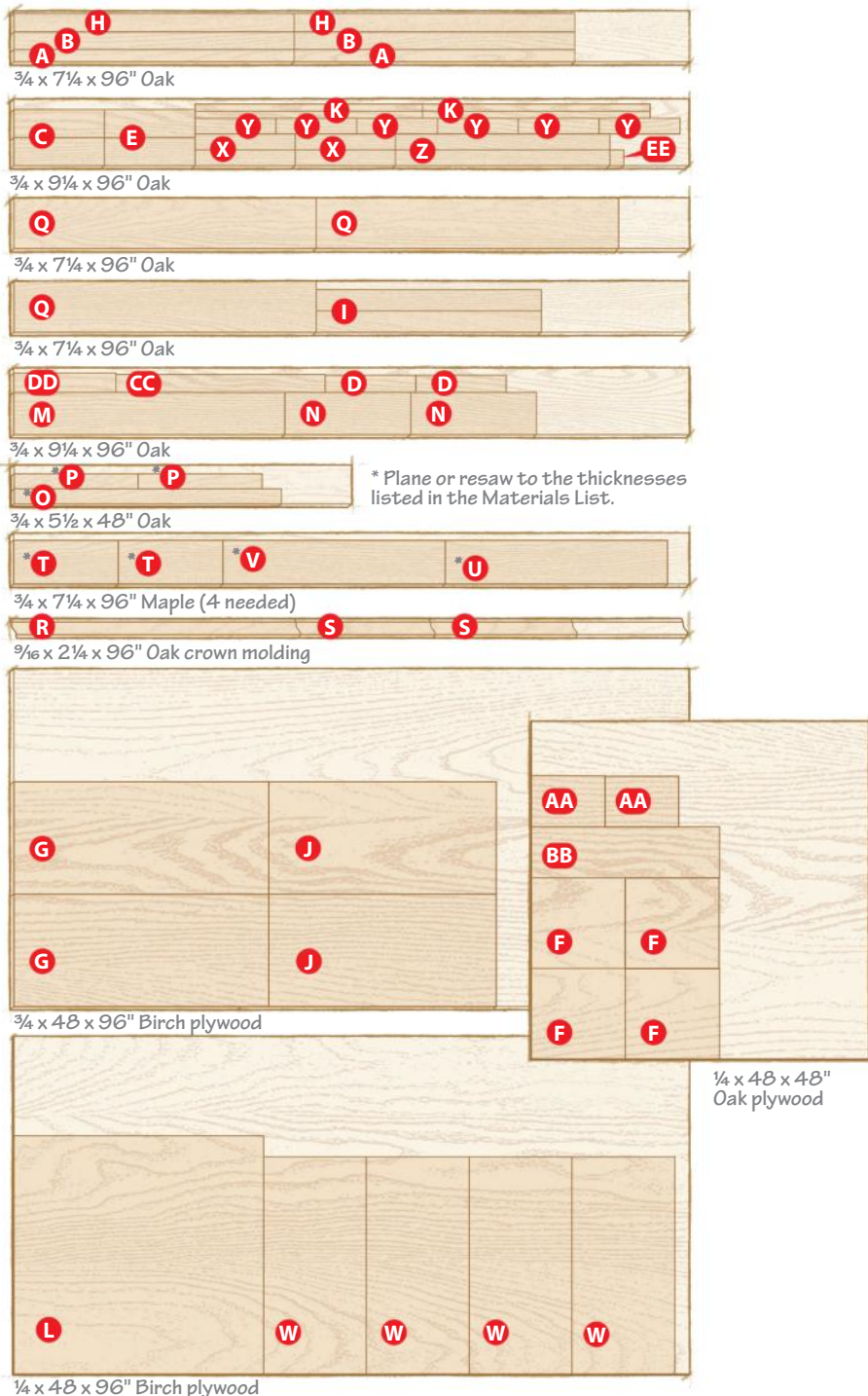
2 Nail the back (L) to the carcase [Drawing 2]. Cut a 22½"-tall scrapwood spacer and use it to position the upper drawer-slide cabinet members [Photo E, Sources]. Progressively trim the spacer [Drawing 8] and use it to install all but the lowest pair of drawer slides.

3 Install the hinges, latches, nameplate, double roller catch, and catch strike [Exploded View, Photo F, Sources].

4 Stand the cabinet upright. Attach the front fixing clips to the drawers [Drawing 5]. Slide the drawers onto the drawer slides until the slides engage the fixing clips. Now start the negotiations on where to locate your versatile creation. 🌳

Produced by **Kevin Boyle** with **Brian Bergstrom** and **Jan Svec**
Project design: **Fran Skwira, Miramar, Fla.**
Illustrations: **Roxanne LeMoine, Lorna Johnson**

Cutting Diagram



Materials List

Part	FINISHED SIZE			Matl.	Qty.	
	T	W	L			
Carcase						
A	front stiles	¾"	1¾"	39⅞"	O	2
B	back stiles	¾"	2½"	39⅞"	O	2
C	upper rails	¾"	4"	12⅞"	O	2
D	center rails	¾"	2½"	12⅞"	O	2
E	lower rails	¾"	4"	12⅞"	O	2
F	side panels	¼"	12⅞"	13⅜"	OP	4
G	carcase top and bottom	¾"	16"	36¼"	BP	2
H	face frame stiles	¾"	2⅞ ¹⁶ "	39⅞"	O	2
I	face frame rails	¾"	3"	32"	O	2
J	liners	¾"	16"	32⅜"	BP	2
K	spacers	¾"	1"	32⅜"	O	4
L	back	¼"	33⅞"	35½"	BP	1
Base and top						
M	base front	¾"	6"	38½"	O	1
N	base sides	¾"	6"	17⅞"	O	2
O	crown base front	½"	2⅞"	38"	O	1
P	crown base sides	½"	2⅞"	17⅞"	O	2
Q	top	¾"	19¾"	42¼"	EO	1
R	crown front	⅞ ¹⁶ "	2¼"	41"	OC	1
S	crown sides	⅞ ¹⁶ "	2¼"	19⅞"	OC	2
Drawers and doors						
T	sides	⅝"	6⅞"	14⅞"	M	8
U*	fronts	⅝"	4⅜"	31⅝"	M	4
V	backs	⅝"	6¼"	31⅝"	M	4
W	bottoms	¼"	30⅞"	14⅞"	BP	4
X	small door stiles	¾"	2¼"	14¼"	O	4
Y	door rails	¾"	2¼"	11½"	O	6
Z	large door stiles	¾"	2¼"	30½"	O	2
AA	small door panels	¼"	11½"	10½"	OP	2
BB	large door panel	¼"	11½"	26¾"	OP	1
CC	center stile	¾"	2⅝"	29¾"	O	1
DD	mid rail	¾"	2¾"	14½"	O	1
EE	catch block	¾"	2¼"	2"	O	1

*Part initially cut oversize. See the instructions.

Materials key: O-oak, OP-oak plywood, BP-birch plywood, EO-edge-joined oak, OC-oak crown molding, M-maple.

Supplies: 1" wire nails, 1 1/4" pocket screws (8), #20 biscuits (2), #8 x 1 1/4" panhead screws (6).

Blade and bits: Dado set; 1/4", 1/2", and 5/8" round-over, bottom-bearing flush-trim, chamfer, 3/8" rabbet, and dovetail router bits.

Sources:

Drawer slides: Hettich Quadro IW21 soft-closing slides, 15", no. HT9134368, \$24.05 per pair (4 pairs); Hettich Quadro front fixing clips for IW21, no. HT9140416, \$1.76 per pair (4 pairs); double roller catch, no. SP2001, \$1.07, Woodworker's Hardware, 800-383-0130, www.hardware.com.

Icebox hardware: Left-hand four-piece set (pair hinges, latch, strike), no. DL-B300-2L, \$10 (2); right-hand four-piece set (pair hinges, latch, strike), no. DL-B300-2R, \$10; icebox sign, no. I12-B329SB, \$4; #7 x 5/8" brass-plated oval-head screws, no. SCR7580PHBP, \$.75 pack of 25 (3 packs), D. Lawless Hardware, 618-395-3945, dlawlesshardware.com.

**FROM FRESH
NEWSPAPERS TO
ALL NEW MUSIC RELEASES
ONLY ON**

AVXHOME.IN



**OUR SEARCH SITE HELPS
TO FIND ALL YOUR
FAVOURITE MAGAZINES**

SOEK.IN

**JOIN US ON
FACEBOOK**

Mil-spec Jeep &

This nimble vehicle and light artillery piece performed with distinction in rugged terrain from WWII through Vietnam. They were cheap and quick-to-build back then, and these models retain those traits: you can build them from scrapwood in a weekend!

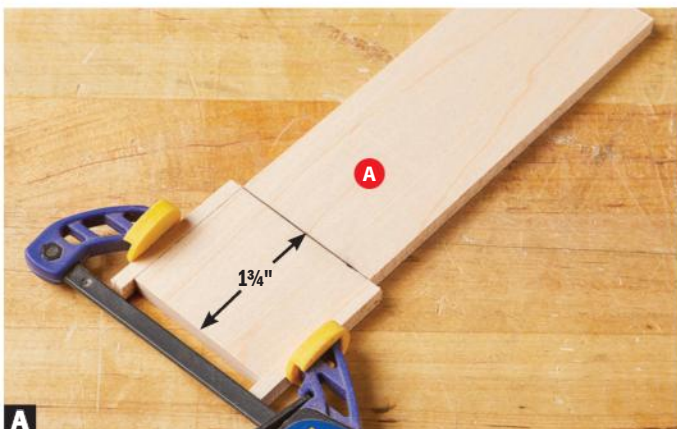


Note: To build this project, prepare 12"-long blanks in the following sizes: $\frac{1}{8} \times 3\frac{1}{4}$ " maple, $\frac{3}{16} \times 1$ " maple, $\frac{1}{4} \times 3\frac{1}{4}$ " maple, $\frac{1}{4} \times 3\frac{1}{4}$ " cherry, $\frac{3}{8} \times 1$ " maple, $\frac{3}{8} \times 1$ " cherry, $\frac{1}{2} \times 1$ " cherry, $1 \times 2\frac{1}{2}$ " maple, $1\frac{1}{2} \times 3$ " cherry.

Let's start with the Jeep

1 Cut the frame (A) to the listed length [Materials List] but $2\frac{3}{16}$ " wide. Rip a $\frac{3}{16}$ " strip from one edge, and from it crosscut two 2"-long pieces. Attach and trim those pieces [Drawing 1a, Photo A.] Then cut the back seat (B) to size and set aside [Drawing 1].

2 From a $1\frac{1}{2} \times 3 \times 12$ " cherry blank, saw a $\frac{1}{2}$ "-long piece from one end for the cowl (C). Cut and sand the 27° miters [Drawing 1b]. Then cut a $1\frac{1}{2} \times 1\frac{1}{2} \times 12$ " scrap and miter one end at 27°. Double-face-tape the cowl to the end of the scrap and rout the corners [Photo B].



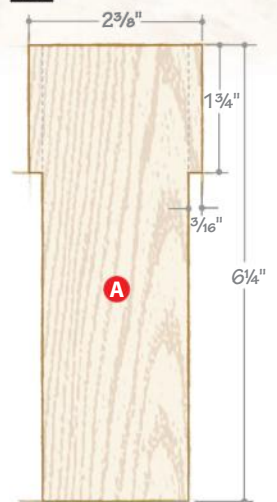
A Glue the crosscut edge pieces back onto the frame (A), aligning them as shown. After the glue dries, trim them flush with the end of the frame.

37mm Gun

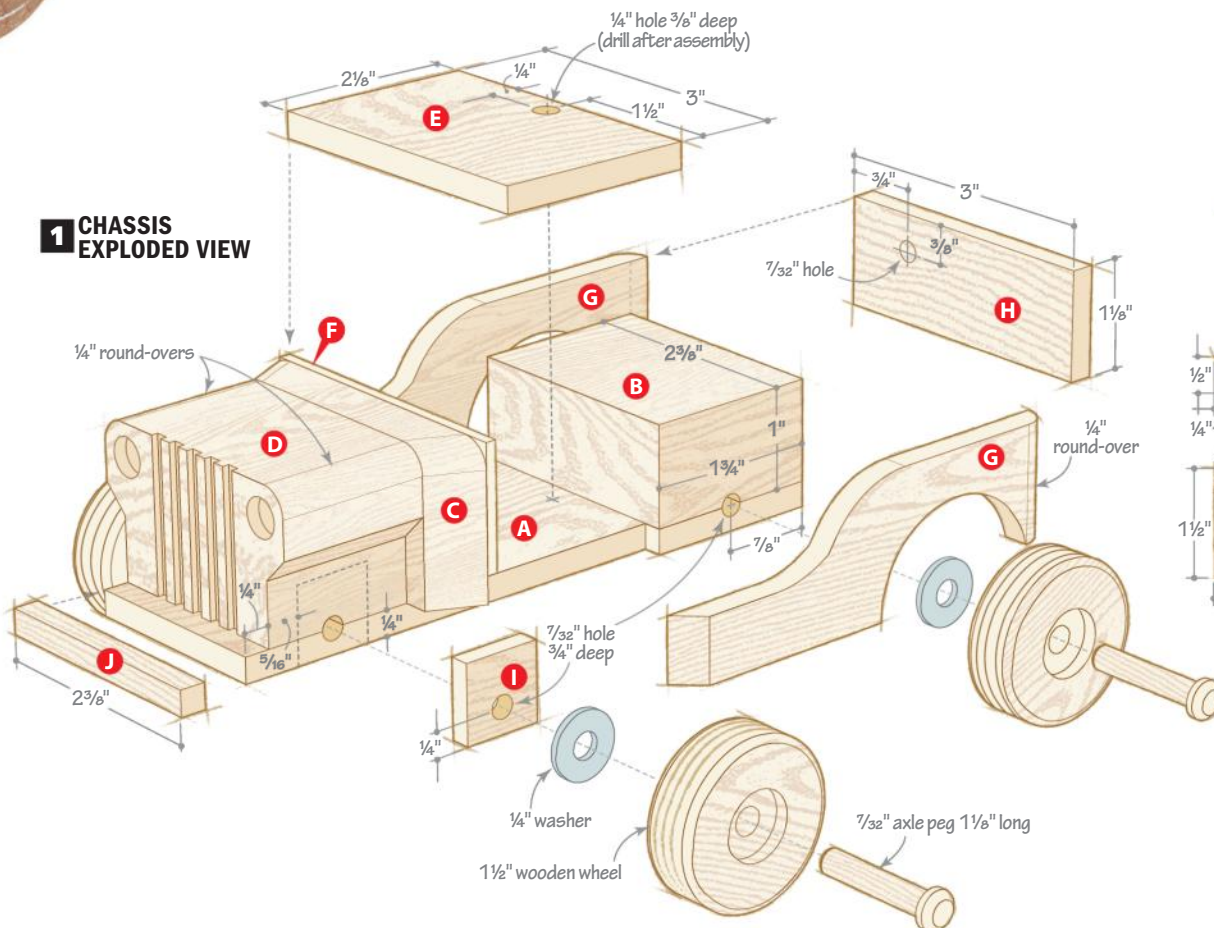
D I M E N S I O N S
JEEP 3 3/4" H x 3 1/2" W x 7 3/16" L
37mm GUN 3 1/4" H x 3 5/8" W x 9 5/8" L
647,925
 Number of
 Jeeps
 manufactured
 for WWII
7'7"
 Length of actual
 gun barrel



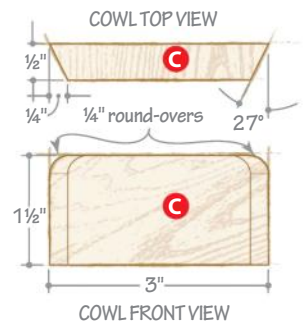
1a FRAME



1 CHASSIS EXPLODED VIEW



1b COWL



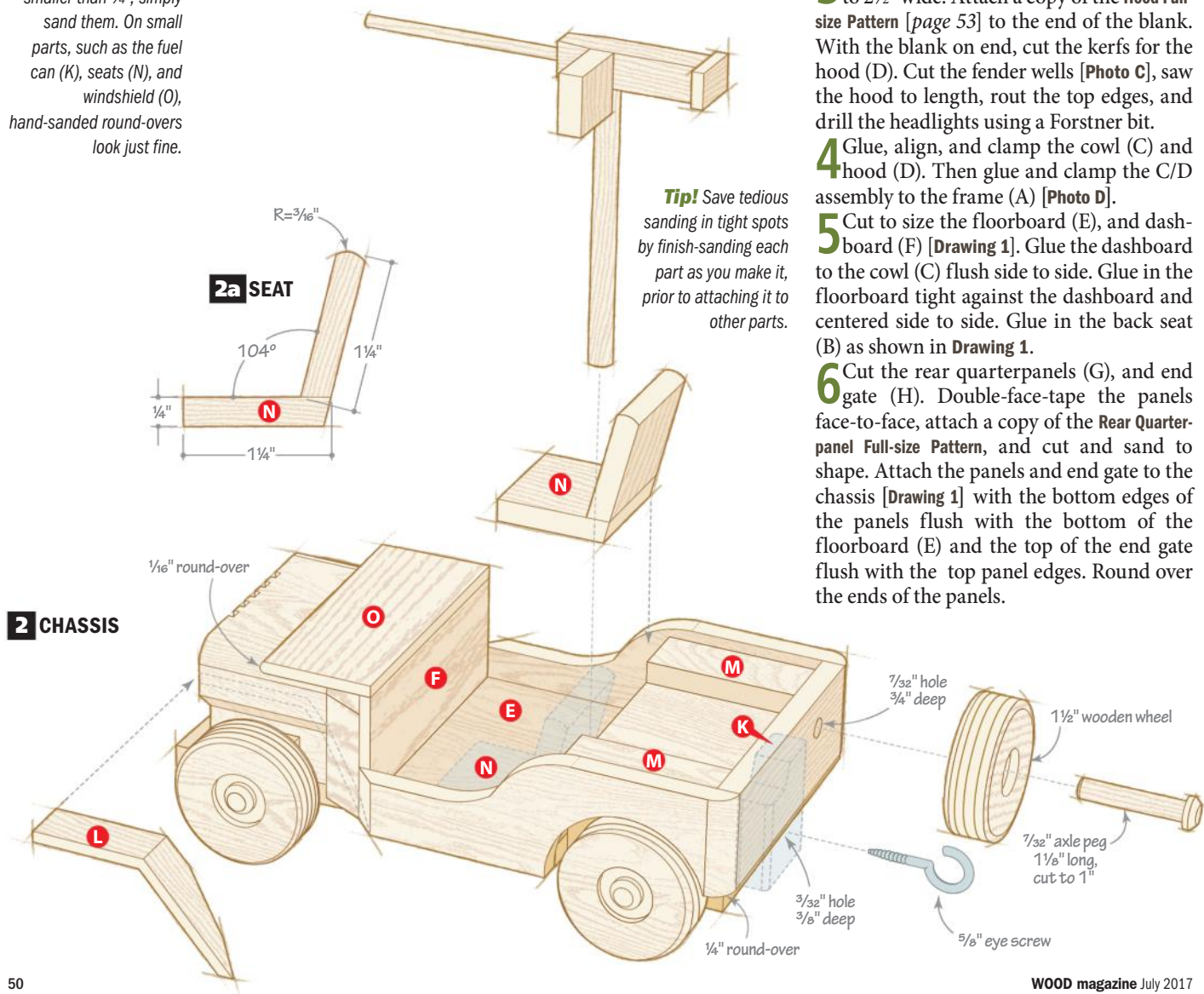


B Rout $\frac{1}{4}$ " round-overs on the top edges of the cowl (C), aligning the mitered edge of the cowl flush with the edge of the scrap.



C Two cuts create the fender wells. Make the first cut with the blade at 90° ; for the second cut, angle the blade to 45° .

Tip! For round-overs smaller than $\frac{1}{4}$ ", simply sand them. On small parts, such as the fuel can (K), seats (N), and windshield (O), hand-sanded round-overs look just fine.



Tip! Save tedious sanding in tight spots by finish-sanding each part as you make it, prior to attaching it to other parts.

3 Retrieve the $1\frac{1}{2}$ " cherry blank and rip it to $2\frac{1}{2}$ " wide. Attach a copy of the **Hood Full-size Pattern** [page 53] to the end of the blank. With the blank on end, cut the kerfs for the hood (D). Cut the fender wells [Photo C], saw the hood to length, rout the top edges, and drill the headlights using a Forstner bit.

4 Glue, align, and clamp the cowl (C) and hood (D). Then glue and clamp the C/D assembly to the frame (A) [Photo D].

5 Cut to size the floorboard (E), and dash-board (F) [Drawing 1]. Glue the dashboard to the cowl (C) flush side to side. Glue in the floorboard tight against the dashboard and centered side to side. Glue in the back seat (B) as shown in **Drawing 1**.

6 Cut the rear quarterpanels (G), and end gate (H). Double-face-tape the panels face-to-face, attach a copy of the **Rear Quarter-panel Full-size Pattern**, and cut and sand to shape. Attach the panels and end gate to the chassis [Drawing 1] with the bottom edges of the panels flush with the bottom of the floorboard (E) and the top of the end gate flush with the top panel edges. Round over the ends of the panels.



D Attach the cowl/hood (C/D) to the frame (A), aligning the hood flush with the edges of the frame and set back $\frac{1}{4}$ " from the front end.



E Drill the wheel-axle-peg holes $\frac{3}{4}$ " deep—the extra depth allows you to fine-tune the depth of the axle pegs later for wheels that spin freely, but without slop.



F Cut the fenders to length using a bandsaw or scrollsaw. Go easy to avoid breaking the end-to-end glue joint.

7 In the floorboard (E) mark and drill the centered gun-turret hole [Drawing 1].

8 Cut the front wheel spacers (I) to size and glue them to the chassis [Drawing 1]. Mark and drill holes for the axle pegs [Photo E]. Also drill a $\frac{7}{32}$ " axle-peg hole $\frac{3}{4}$ " deep through the end gate (H).

A few more parts complete the Jeep

1 Cut the bumper (J) to size, and glue it to the front of the frame (A), centered side to side. Then, cut the fuel can (K) [Full-size Pattern] and glue it to the end gate (H), positioned as shown in Drawing 2.

2 From your $\frac{1}{8}$ " maple blank, cut two $\frac{1}{2} \times 3$ " strips. Tilt your tablesaw blade to 24.5° , crosscut each strip at its center, and crosscut the offcut to make matching bevels [Fender Full-size Patterns]. Glue each pair back together at the beveled ends to form the fenders (L). Make a copy of the Driver-Side and Passenger-Side Fender Full-size Patterns and adhere those to the tops of the fenders. Cut the fenders to length [Photo F]. Then sand each angled edge to match where it mates against the cowl. Take your time to ensure a tight fit. Glue on each fender, aligning it flush with the front of the hood and centered on the headlights.

3 Cut the rear wheel wells (M) and glue them in place [Drawing 2].

4 From your $\frac{1}{4}$ " maple blank, cut two $1\frac{1}{4} \times 2\frac{3}{8}$ " pieces. Tilt your blade to 14° , crosscut each piece at its center, and glue each pair back together to make the seats (N) [Drawing 2a]. Sand the round-over. Glue the seats in place against the quarterpanels.

5 Cut to size the windshield (O), round over one edge, and glue it in place [Exploded View].

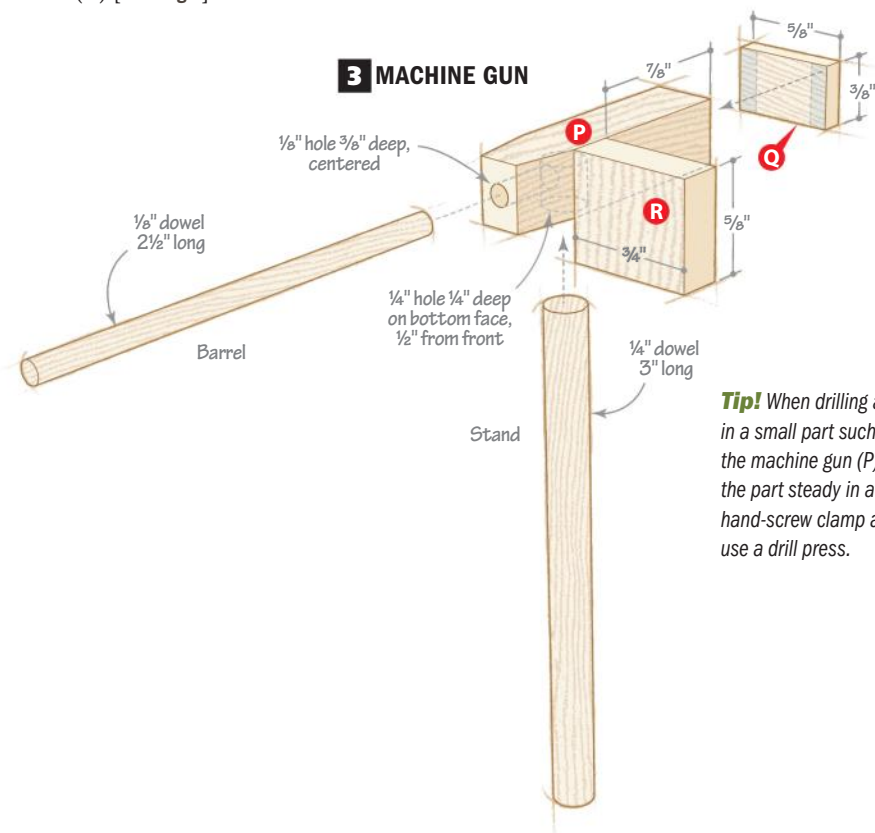
6 Apply finish to the Jeep (we sprayed on three coats of aerosol lacquer). Also finish five wheels and axle pegs [Source], being careful to keep finish off the portion of the pegs that will be glued into the chassis.

7 Glue on the wheels and axle pegs, using washers only on the four rotating wheels [Drawing 1]. The wheels should freely rotate without excess slop. Cut down the axle peg holding the spare tire. Spread open a $\frac{5}{8}$ " eye screw to make a tow hook and add it to the back of the Jeep, centered on the end of the frame (A) [Drawing 2].

Add the machine gun

1 Cut the machine gun (P) to size and shape [Full-size Pattern]. Drill holes for the gun barrel and stand. With a square, check that the gun is perfectly vertical before drilling the barrel hole.

2 Cut the barrel, stand, gun grip (Q), and ammo box (R) to size [Drawing 3]. Assemble the machine gun. Apply finish and allow it to dry before gluing the stand into the hole in the floorboard (E).



Tip! When drilling a hole in a small part such as the machine gun (P), hold the part steady in a wood hand-screw clamp and use a drill press.



Build a towable 37mm gun

1 Cut the axle (S) to size [Materials List, Drawing 4]. Drill centered holes in the ends as you did with the machine gun.

2 Cut to size the upper (T) and lower (U) shields. In the upper shield drill a $\frac{1}{2}$ " hole [Drawing 5] and complete the slot using a bandsaw or scrollsaw. Glue the shields to the axle [Drawing 4].

3 Cut the tow bars (V) and tow-bar brackets (W) [Full-size Pattern]. Drill and shape them [Drawing 5]. Glue the tow-bar brackets to the axle (S) [Drawing 4]. Then drill angled holes in the tapered ends of

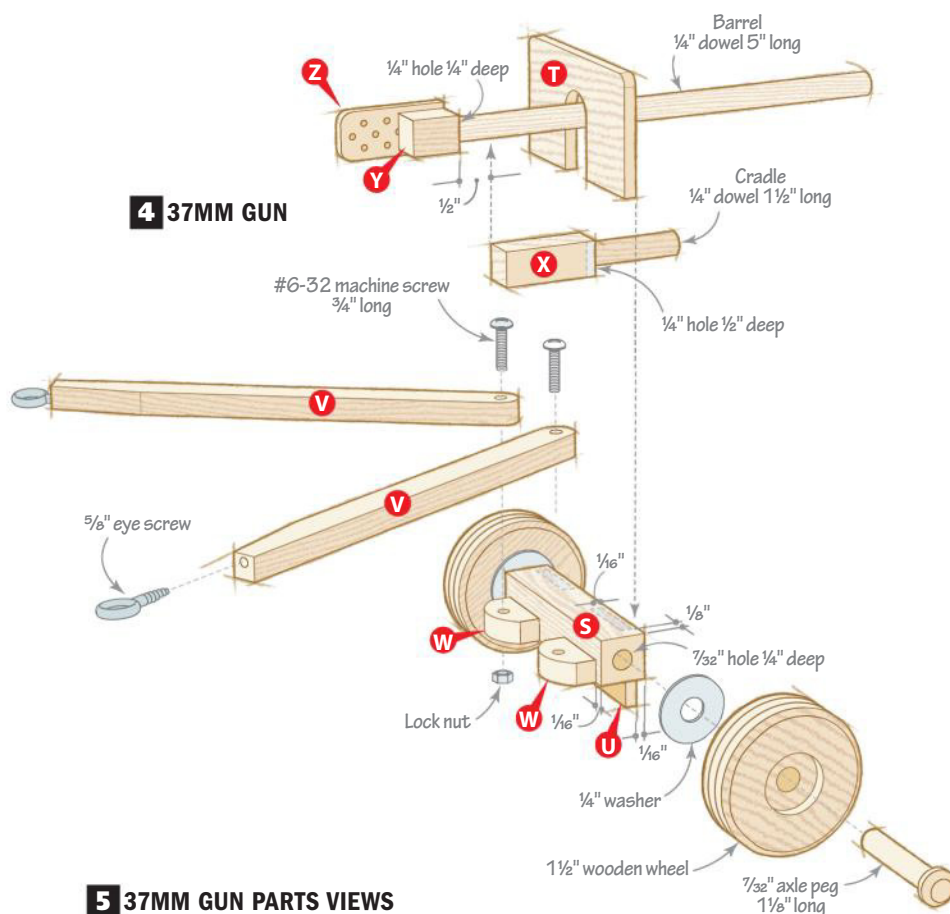
the tow bars [Photo G]. Attach the tow bars to the brackets with screws and lock nuts.

4 Cut the barrel mount (X) and bolt (Y) to size. Drill a hole into the end of each for the barrel and cradle dowels. Glue in the dowels, and then glue the barrel to the barrel mount [Drawing 4]. Glue this assembly to the axle.

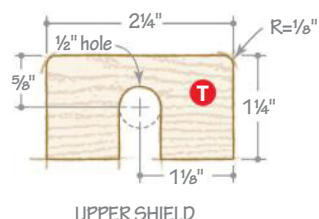
5 Cut the recoil guard (Z) to shape [Full-size Pattern], drill holes, remove the pattern, and glue it to the bolt (Y).

6 Apply finish and add the wheels, axle pegs, and washers as you did for the Jeep. Your classic battlefield duo is ready for action! 🌲

4 37MM GUN

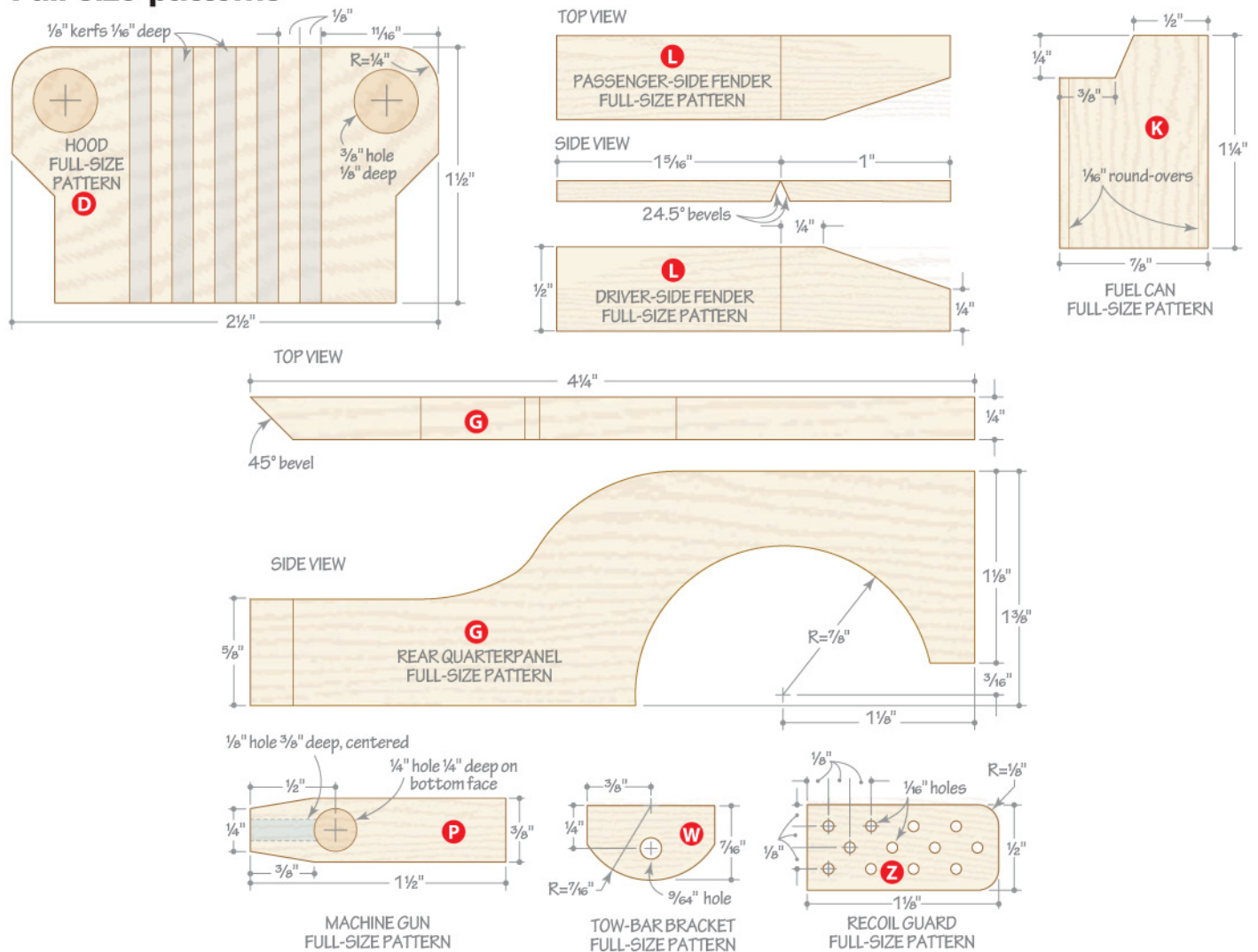


5 37MM GUN PARTS VIEWS



G Drill angled $\frac{1}{16}$ " pilot holes for $\frac{5}{16}$ " eye screws. Eyeball the angle so the eyes overlap when the angled edges of the tow bars meet, allowing the Jeep's tow hook to fit through them.

Full-size patterns



Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
Jeep					
A* frame	1/4"	23/8"	61/4"	M	1
B back seat	1"	23/8"	13/4"	M	1
C* cowl	11/2"	3"	1/2"	C	1
D* hood	11/2"	21/2"	11/2"	C	1
E floorboard	1/4"	3"	25/8"	M	1
F dashboard	1/8"	11/2"	3"	M	1
G rear quarterpanels	1/4"	13/8"	41/4"	C	2
H end gate	1/4"	11/8"	3"	C	1
I front wheel spacers	3/16"	3/4"	3/4"	M	2
J front bumper	1/4"	1/4"	23/8"	M	1
K fuel can	3/8"	7/8"	11/4"	M	1
L* fenders	1/8"	1/2"	2"	M	2
M rear wheel wells	1/4"	5/8"	13/4"	C	2
N* seats	1/4"	11/4"	11/4"	M	2
O windshield	1/8"	13/8"	3"	M	1
P* machine gun	3/8"	3/8"	11/2"	C	1
Q gun grip	1/8"	3/8"	5/8"	M	1
R ammo box	1/4"	3/4"	5/8"	C	1

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
37mm gun					
S axle	½"	½"	2½"	C	1
T upper shield	⅛"	1¼"	2¼"	M	1
U lower shield	⅛"	⅝"	2¼"	M	1
V tow bars	¼"	⅜"	5"	C	2
W tow-bar brackets	¼"	⅞"	¾"	M	2
X barrel mount	⅜"	⅜"	1"	C	1
Y bolt	⅜"	⅜"	½"	C	1
Z recoil guard	⅛"	½"	1⅝"	M	1

*Parts initially cut under- or oversize. See the instructions.

Materials key: M-maple, C-cherry.

Bits: 1/8", 3/16", and 1/4" round-over router bits; 3/8" Forstner bit.

Source: Each kit includes the hardware and specialty parts to build one Jeep and one 37mm gun. You provide the lumber. 1/8" dowel rod 3" long, 1/4" dowel rod 10" long, 1 1/2" wooden wheels (7), 7/32" axle pegs (7), 1/4" galvanized washers (6), 3/8" eye screws (3), #6-32x3/4" machine screws (2), #6-32 lock nuts (2). Kit no. RS-01149, \$5.95, 888-636-4478, woodmagazine.com/jeepkit.

Produced by **Bill Krier** with **Kevin Boyle**
 Project design: **Kevin Boyle**
 Illustrations: **Roxanne LeMoine, Lorna Johnson**



Plumb Your Shop for Air

Build a network to put compressed air always within easy reach.

No matter the size of your shop, you'll enjoy the benefits of having a piped network of compressed air. Rather than snaking a single long air hose around obstacles and trying not to trip over it, install your own custom system with hose connections right where you need them. You can then install shorter hoses and the tools you need at each station. Read on to learn the how-to as well as the why-to.



Tip! Need more air storage? Add a companion tank to your network. Simply plumb it into the system as you would a pass-through filter.



Select a strategy first

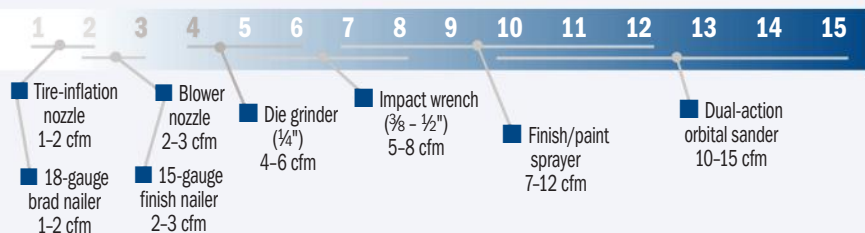
Start by planning what you want to achieve with a system. Do you just need to blow dust off projects and use a brad nailer occasionally? Do you want to spray-finish projects? Or do you want to use other pneumatic tools, such as sanders or impact wrenches? Each need requires a different airflow volume, so choose an air compressor capable of supplying the needed cfm (cubic feet per minute) for the tools you plan to use. (See *below*.) In addition to airflow, your compressor needs sufficient tank size so its pump won't run constantly.

Next, lay out the locations of the compressor and hose connections. To cut down on noise, consider locating the compressor in a closet or adjacent room, and then run the pipe through the wall. But remember, a compressor needs fresh intake air, so make sure the location has adequate ventilation. Place hose-connection stations where you'll use them most. For example, one near the workbench provides quick access for nailers, and another by the overhead garage door makes it easy to inflate a low tire on a vehicle parked outside. If you plan to spray finish, install a connection near an exhaust fan or overhead door.

Connecting an air compressor to the pipe system with a short, flexible hose lets you disconnect it should you need to take the compressor elsewhere. This hose also isolates compressor vibration, blocking it from transferring into the pipe network. A pass-through filter near the compressor traps most contaminants and water to keep the lines clean. To drain moisture from the tank, either take the compressor outside, or attach a small tube to the drain valve that reaches outside. Install a shut-off valve above the filter so you can unhook the compressor without discharging the entire pipe network.

Tip! Prevent an air compressor from scooting due to vibration by placing it on a non-slip mat or securing it with cleats.

Airflow needs of pneumatic tools



Warning! Do not use PVC pipe, or PEX and similar plumbing fittings for compressed air. They're not rated for high pressure and can fracture or explode under pressure.

Now for the pipe

Choose from steel, copper, or aluminum pipe to plumb a system, or even semiflexible rubber tubing approved for high pressure. Each has advantages and disadvantages and requires a different method of installation, but they all function well. We chose copper because it doesn't rust, is readily available at

hardware stores and home centers, costs about the same as steel pipe, and can be easily modified later, if needed. Granted, you'll need to learn to sweat/solder joints—the heart of copper plumbing—but with a little practice it becomes second nature.

Tip! To alter or expand your system, simply cut a pipe and install a new tee, or loosen an existing tee by heating it with the torch and making your changes.

How to sweat copper joints

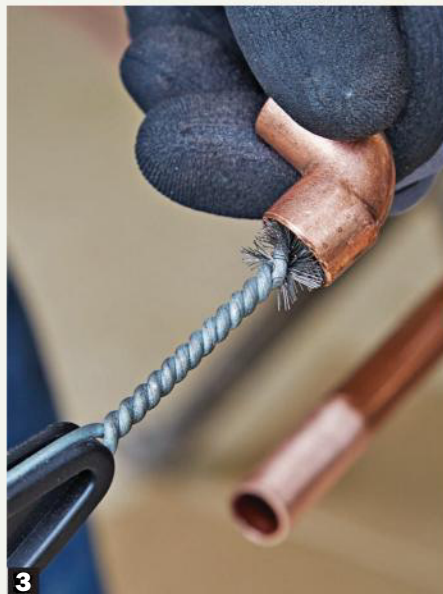
► A typical propane torch works fine for sweating copper pipe, but an oxy/acetylene or MAP-gas (methylacetylene-propadiene) torch (as little as \$70) gets the job done a lot faster. Buy a complete copper-sweating tool kit: woodmagazine.com/copperkit.



1 Cut pipe sections to length with a tubing cutter, and then clean the ends. Clean the outside of the pipe with sandpaper or emery cloth.



2 Use a deburring tool to remove the raised burr from inside the pipe.



3 Using a wire bristle brush, clean the inside of the fitting.



4 Apply flux to the pipe end as well as the fitting. Slide the fitting onto the pipe, making sure to align it as needed to correspond with other fittings already installed.



5 Using a torch, heat the joint. When flux bubbles out, touch solder to the joint. As the solder melts, capillary action sucks it into the joint. Be sure to apply solder all around the joint.



6 When finished, wipe off excess flux, which can corrode the pipe over time. Allow the pipe to cool before installing.

Tip! Sweat together subassemblies, such as a hose-connection drop, before connecting them to the pipe network already in place on the wall. This reduces the amount of work done on a ladder or overhead.

Fixtures fill out the field

In addition to pipe, you'll need a number of readily available fixtures to outfit the system. Tees and elbows let you turn, branch off, or add other fixtures. Wall-mounted stand-off brackets hold the pipe securely and leave 3–4" between the pipe and wall, necessary for attaching some fixtures and for soldering without burning the wall, *right*. You'll need valves for turning on or off the air pressure at various places along the network. And quick-connect fittings provide the link between pipe and air hose, *below*.

You'll also want a pressure regulator at each drop, which allows you to control the air pressure at each hose separately without having to change the setting for the whole system at the compressor. For example, most finish nailers work best at 90 psi, but a sprayer might require only 40–50 psi.

You can also add inline filters at each drop, but one at the main line near the compressor should be sufficient. In addition to filters, another (less-expensive) way to combat moisture is to install "drip legs." These valves below tees provide straight paths for water to drain [Photos below]. We recommend installing one at every drop. Don't skimp on the regulators and filters. You don't want to risk damage to a tool or water in your sprayed finish, so opt for better quality components. 🌱

► Save money by making your own hose hangers. woodmagazine.com/achose

Produced by **Bob Hunter** and **Dave Ridgway** with **Sonny Tedder** and **Gary Harper** of A.J. Allen Mechanical Contractors, Inc.

Stand-off bracket

Stand-offs provide elbow room, necessary when soldering on the wall, allowing you to get solder into the joint all around, while keeping the flame off the wall and ceiling.

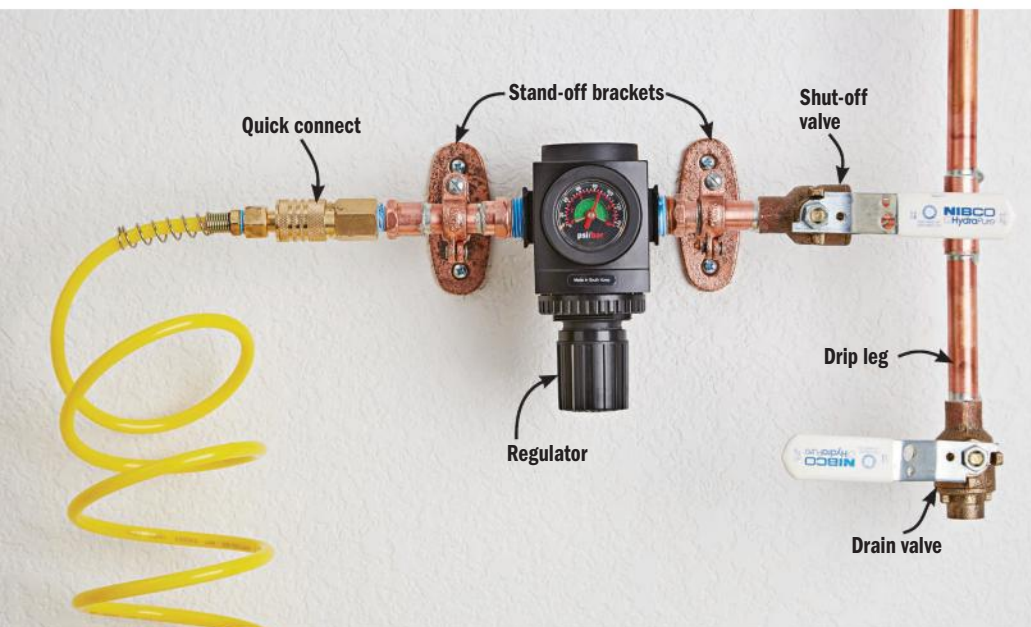
Sources

Hose reels: Flexzilla $\frac{3}{8}$ " × 30', no. L8230FZ, \$84.44; $\frac{3}{8}$ " × 50', no. L8250FZ, \$85.01, amazon.com.

Regulator: ARO $\frac{1}{2}$ " NPT 250 maximum psi, no. R37341-600-VS, \$49.08, amazon.com.

Inline filter: ARO $\frac{1}{2}$ " NPT 150 maximum psi, no. F35341-400-VS, \$41.98, amazon.com.

► We've made it easy to get all the air-system accessories (not including the copper fittings) in this article in one place. Go to woodmagazine.com/plumbshop, update the quantities you need, and purchase them securely through amazon.com.



A typical hose-connection drop tees off the pipe to the side with a valve, regulator, and quick-connect fitting. The drip leg keeps moisture from getting to the hose.



A hose reel makes for easy hose management at a drop. You can buy a reel with a swivel mounting bracket so it stores flat against the wall when not in use.

TOUGH Dries Natural Color, No Foam GLUE



Gorilla Wood Glue's premium formula creates a cross-linking bond to provide superior strength with a Type II water resistance, indoors and out.



**For the Toughest Jobs
on Planet Earth®**

www.gorillatough.com

©2017 The Gorilla Glue Company

AccuMASTER™ XT Moisture Meter Stop guessing. Save time & money!

Model
7440



Measure moisture in any wood for any project.

- **Large**, easy-to-read, backlit display is always on
- **Versatile** – use for wood and building materials
- **Stainless steel** replaceable steel pins
- **Quality** products since 1978, 1-year warranty

Don't let warping, shrinking or cracking happen to you.
Always check your material for moisture before starting any woodworking project.



**CALCULATED
INDUSTRIES®**

For a dealer near you call 1-800-854-8075
or go to www.calculated.com

TOOLS FOR MULTI-CUTTERS MAXIMIZING YOUR WORK PERFORMANCE

STAINLESS STEEL ARBOR protects your tools against corrosion and rust and guarantee precise work and optimum power transfer.
BLUEING COATING protects your tools against corrosion and rust and will not dirty cutting profile.



HCS

High Carbon Steel



**BIM
8% Co**

Bi-Metal with 8% Cobalt



**BIM
TiN**

Bi-Metal with 8% Cobalt
with Titanium coating



HW

Tungsten Carbide Tipped



Diamond Grit Coated



**CARBIDE
GRIT**

Tungsten Carbide Grit Coated

CMT Universal arbor fits directly onto almost
all different commercially available multitools

Arbor for Fein® SuperCut
and Festool® Vecturo available

**CMT ORANGE
TOOLS®**

CMT USA, INC.
7609 Bentley Road Suite D
Greensboro, NC 27409

phone: 336.854.0201
toll-free: 888.268.2487
Fax: 336.854.0903

Free-Fax: 800.268.9778
info@cmtusa.com
www.cmtusa.com

Daily Grinders

For shaping and sharpening hand-tool blades quickly, nothing tops a bench grinder. In most cases, you'll still need to hone the edge with a waterstone, diamond stone, or sandpaper, but the grinder gets the rough work done. These tools create a hollow grind on chisels and plane irons (shown *top right*) that speeds up the honing process. Grinders are also great for sharpening turning chisels, which don't need finely honed edges.



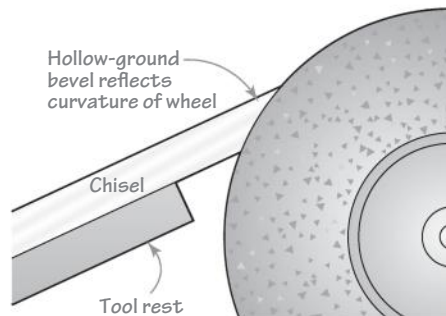
Rikon 80-808, \$220

- ▶ Wheel diameter: 8"
- ▶ Wheels: 60- and 120-grit aluminum oxide

A dedicated slow-speed (1,750 rpm) grinder, the 80-808 runs powerfully and smoothly, and it won't heat up tools as quickly as faster machines. The solid tool rests adjust easily (although you'll need one wrench), and the magnifying-lens guards and LED lamp really help visibility. (It also comes with standard guards.)

877-884-5167, rikontools.com

Best of
the best



Delta 23-197, \$130

- ▶ Wheel diameter: 8"
- ▶ Wheels: 36- and 60-grit aluminum oxide

Although we'd never run this variable-speed grinder faster than its slowest speed (2,000 rpm) to avoid overheating tools, it runs smoothly without vibration. The tool rests adjust without wrenches (nice!). We'd prefer a finer-grit wheel than the 36-grit one it came with, and we found the angled drill-bit slot annoying when sharpening flat blades.

800-223-7278, deltamachinery.com



Craftsman 21154, \$130

- ▶ Wheel diameter: 6"
- ▶ Wheels: 60-grit aluminum oxide and wire bristle

The stone wheel works great for shaping tool edges, but for finer sharpening, we'd prefer a 120-grit wheel. The wire wheel comes in handy for cleaning tools and removing a sharpening burr, but we could live without it. Like the Delta 23-197, run this variable-speed machine at its slowest speed (2,000 rpm). We like its solid tool rests, including both flat and angled drill rests for the left side.

800-349-4358, craftsman.com

continued on page 62

HARBOR FREIGHT

QUALITY TOOLS AT RIDICULOUSLY LOW PRICES

drillmaster SUPER COUPON

Customer Rating **★★★★**

4-1/2" ANGLE GRINDER
ITEM 69645
60625 shown



SAVE 50%

SUPER COUPON
\$99
Compare \$20.13

29463177

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CENTECH SUPER COUPON

AUTOMATIC BATTERY FLOAT CHARGER
ITEM 69594/69955
42292 shown



SAVE 85%

SUPER COUPON
\$49
Compare \$34.99

29416958

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CENTRAL MACHINERY SUPER COUPON

Customer Rating **★★★★**

16" VARIABLE SPEED SCROLL SAW
ITEM 62519/63283/93012 shown



SAVE \$79

SUPER COUPON
\$699
Compare \$149

29457924

LIMIT 4 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

PITTSBURGH SUPER COUPON

Customer Rating **★★★★**

9 PIECE FULLY POLISHED COMBINATION WRENCH SETS
ITEM 69043/63282/42304 shown
SAE
ITEM 42305/69044/63171
METRIC



SAVE 59%

YOUR CHOICE
\$5
Compare \$14.97

29428720

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

WINDSOR DESIGN SUPER COUPON

DOVETAIL JIG
ITEM 34102



Customer Rating **★★★★**

SAVE 45%

SUPER COUPON
\$279
Compare \$51.72

29435678

LIMIT 4 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

20% OFF
ANY SINGLE ITEM

Limit 1 coupon per customer per day. Save 20% on any 1 item purchased. *Cannot be used with other discount, coupon or any of the following items or brands: Inside Track Club membership, Extended Service Plan, gift card, open box item, 3 day Parking Lot Sale item, compressors, floor jacks, saw mills, storage cabinets, chests or carts, trailers, trenchers, welders, Admiral, Bauer, CoverPro, Daytona, Earthquake, Hercules, Jupiter, Lynox, Poulain, Predator, StormCat, Tailgator, Viking, Vulcan. Not valid on prior purchases. Non-transferable. Original coupon must be presented. Valid through 9/2/17.

29429421

CENTRAL MACHINERY SUPER COUPON

Customer Rating **★★★★**

8", 5 SPEED BENCHTOP DRILL PRESS
ITEM 62520/62390
60238 shown



SAVE \$75

SUPER COUPON
\$499
Compare \$125.13

29467317

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CENTRAL PNEUMATIC SUPER COUPON

Customer Rating **★★★★**

RETRACTABLE AIR HOSE REEL WITH 3/8" x 50 FT. HOSE
ITEM 93897 shown
69265/62344



SAVE \$138

SUPER COUPON
\$599
Compare \$198.45

29461550

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

PITTSBURGH SUPER COUPON

Customer Rating **★★★★**

16 OZ. HAMMERS WITH FIBERGLASS HANDLE
ITEM 69006
60715/60714
ITEM 47873 shown
69005/61262
CLAW
RIP



YOUR CHOICE
\$39
Compare \$17.99

29451430

LIMIT 7 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

U.S. GENERAL SUPER COUPON

Customer Rating **★★★★**

26", 16 DRAWER ROLLER CABINET
ITEM 61609/67831 shown



- 1060 lb. capacity
- 14,600 cu. in. of storage

SAVE \$653

SUPER COUPON
\$2999
Compare \$952.99

29464366

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CENTRAL MACHINERY SUPER COUPON

Customer Rating **★★★★**

14" OSCILLATING SPINDLE SANDER
ITEM 95088
62146
69257 shown



SUPER COUPON
\$999
Compare \$152.99

SAVE \$53

29422645

LIMIT 4 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CENTRAL MACHINERY SUPER COUPON

Customer Rating **★★★★**

2 HP INDUSTRIAL 5 MICRON DUST COLLECTOR
ITEM 61790/97869 shown



- 70 gallon capacity

SAVE \$205

SUPER COUPON
\$1999
Compare \$384.99

29467560

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

HaulMaster SUPER COUPON

Customer Rating **★★★★**

1000 lb. capacity MOVER'S DOLLY
ITEM 60497/93888 shown
61899/62399/63095/63096
63098/63097



SAVE 59%

SUPER COUPON
\$799
Compare \$19.97

29462299

LIMIT 6 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

PITTSBURGH SUPER COUPON

Customer Rating **★★★★**

24" CLAMP AND CUT EDGE GUIDE
ITEM 66126



SAVE 83%

SUPER COUPON
\$799
Compare \$49.23

29460681

LIMIT 6 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CENTRAL MACHINERY SUPER COUPON

Customer Rating **★★★★**

4" x 36" BELT/6" DISC SANDER
ITEM 62502
97181 shown



SAVE \$64

SUPER COUPON
\$599
Compare \$124.51

29432700

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

HYDROSTAR SUPER COUPON

Customer Rating **★★★★**

50 FT. ELECTRIC DRAIN CLEANER
ITEM 61856
68285 shown



SAVE \$199

SUPER COUPON
\$1999
Compare \$399

29440407

LIMIT 3 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CHICAGO & ELECTRIC POWER TOOLS **SUPER COUPON**

SAVE \$94

10" SLIDING COMPOUND MITER SAW
ITEM 61971/61972 98199 shown

- Powerful 15 amp motor
- Makes precision cross, bevel and miter cuts
- Dual linear slide rails for stability and smooth, precise cuts
- 45° left bevel design
- Easy access brushes

SUPER COUPON \$84.99

Customer Rating ★★★★★

Blade sold separately.

29516034

LIMIT 4 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

SUPER COUPON

FREE

WITH ANY PURCHASE

3-1/2" SUPER BRIGHT NINE LED ALUMINUM FLASHLIGHT
ITEM 69052 shown 69111/62522 62573/63599

\$4.97 VALUE

LIMIT 1 - Cannot be used with other discount, coupon or prior purchase. Coupon good at our stores, HarborFreight.com or by calling 800-423-2567. Offer good while supplies last. Shipping & Handling charges may apply if not picked up in-store. Non-transferable. Original coupon must be presented. Valid through 9/2/17. Limit one FREE GIFT coupon per customer per day.

29507575

PITTSBURGH **SUPER COUPON**

ITEM 46807/68975 69221/62123/63017 69222 shown

12" RATCHET BAR CLAMP/SPREADER

SAVE 85%

SUPER COUPON \$2.99

Compare \$20.76

29544045

LIMIT 7 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CENTRAL PNEUMATIC **SUPER COUPON**

SAVE \$84

18 GAUGE 2-IN-1 NAILER/STAPLER
ITEM 63156/68019 shown

Customer Rating ★★★★★

SUPER COUPON \$15.99

Compare \$99.99

29477031

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

PITTSBURGH AUTOMOTIVE **SUPER COUPON**

#1 SELLING JACKS IN AMERICA

RAPID PUMP® 3 TON LOW PROFILE HEAVY DUTY STEEL FLOOR JACK
ITEM 61282 shown 61253/62326

SAVE \$190

• Weighs 73 lbs.

SUPER COUPON \$199.99

Compare \$269.99

Customer Rating ★★★★★

29475734

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

PREDATOR **SUPER COUPON**

6.5 HP (212 CC) OHV HORIZONTAL SHAFT GAS ENGINES
ITEM 60363/69730 61693/62803 67847 shown

Customer Rating ★★★★★

SAVE \$290

SUPER COUPON \$99.99

Compare \$389.99

29507193

LIMIT 3 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CENTRAL PNEUMATIC **SUPER COUPON**

2.5 HP, 21 GALLON, 125 PSI VERTICAL AIR OIL-LUBE COMPRESSOR
ITEM 69091/61454 61693/62803 67847 shown

Customer Rating ★★★★★

SAVE \$296

SUPER COUPON \$149.99

Compare \$446.61

29497189

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

WARRIOR **SUPER COUPON**

29 PIECE TITANIUM NITRIDE COATED HIGH SPEED STEEL DRILL BIT SET
ITEM 62261/61637 shown

Customer Rating ★★★★★

SAVE 83%

SUPER COUPON \$9.99

Compare \$59.98

29499491

LIMIT 6 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CENTECH **SUPER COUPON**

3-IN-1 PORTABLE POWER PACK WITH JUMP STARTER
ITEM 38391/62376/62306 shown

SAVE 38%

SUPER COUPON \$39.99

Compare \$64.99

Customer Rating ★★★★★

29499947

LIMIT 3 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

HARDY **SUPER COUPON**

MECHANIC'S GLOVES

SIZE	ITEM
MED	62434/62426
LG	62433/62428
X-LG	62432/62429

Item 62429 shown

YOUR CHOICE \$3.99

Compare \$9.98

SAVE 60%

29469716

LIMIT 7 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

HaulMaster **SUPER COUPON**

72" x 80" MOVING BLANKET
ITEM 69505/62418/66537 shown

Customer Rating ★★★★★

SAVE 66%

SUPER COUPON \$5.99

Compare \$17.97

29494750

LIMIT 8 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CENTRAL MACHINERY **SUPER COUPON**

UNIVERSAL TOOL STAND
ITEM 69805 shown

• 500 lb. capacity

SAVE 57%

SUPER COUPON \$29.99

Compare \$69.99

Customer Rating ★★★★★

29521455

LIMIT 4 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

Lifetime CARBIDE **SUPER COUPON**

ALUMINUM OXIDE SANDING SPONGES - PACK OF 10
ITEM 46751 46752 46753

YOUR CHOICE \$3.99

Compare \$4.99

29541019

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CHICAGO & ELECTRIC POWER TOOLS **SUPER COUPON**

ITEM 68987

4" BISCUIT PLATE JOINER

Customer Rating ★★★★★

SAVE \$134

SUPER COUPON \$44.99

Compare \$179

29516537

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

U.S. GENERAL **SUPER COUPON**

30", 5 DRAWER TOOL CART
ITEM 61427 63308/65272 shown

Customer Rating ★★★★★

SAVE \$240

SUPER COUPON \$159.99

Compare \$399.99

• 704 lb. capacity
• 8100 cu. in. of storage
• Weighs 120 lbs.

29543346

LIMIT 5 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

CENTRAL MACHINERY **SUPER COUPON**

2.5, HP 12" THICKNESS PLANER
ITEM 95082

Customer Rating ★★★★★

SAVE \$129

SUPER COUPON \$239.99

Compare \$369

29468003

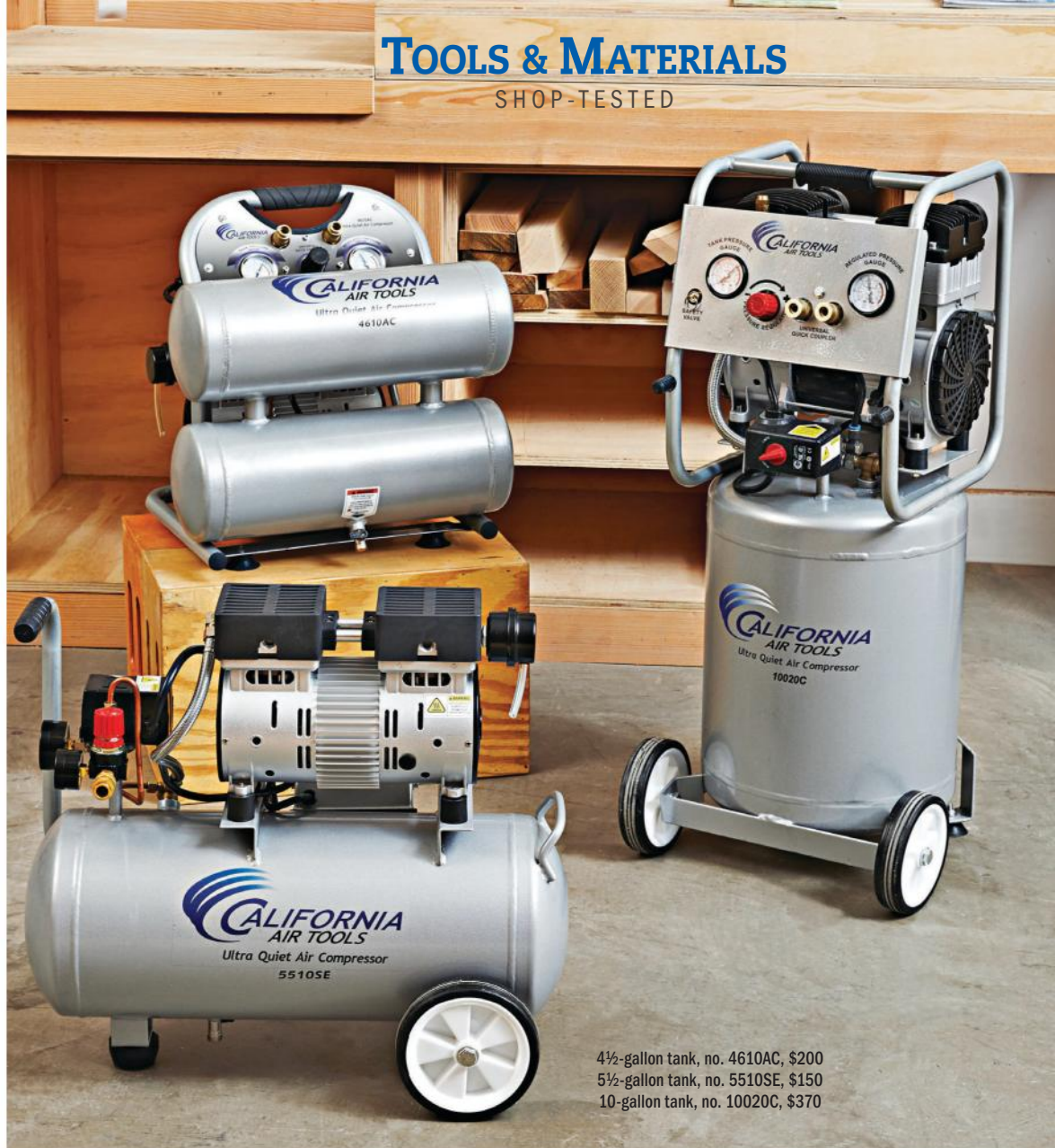
LIMIT 3 - Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 9/2/17.

Shhhh! These compressors have a secret

If you enjoy a loud air compressor, then stop reading here—these are not for you. But if you want a compressor that runs as quiet as normal conversation, then get to know the California Air Tools line. The three models shown here run between 67 and 70 decibels—about 20 decibels quieter than a typical oil-free compressor. The secret is in their two-cylinder, oil-free pumps, powered by slow-speed motors. (Single-cylinder compressors have to run twice as fast, creating more noise.) All of these work well for powering nailers, blowing dust around, and inflating tires. The 4½-gallon unit has twin aluminum tanks and weighs just 45 pounds; the other two have steel tanks.

—Tested by Bob Hunter, Tools Editor

866-409-4681, californiaairtools.com



4½-gallon tank, no. 4610AC, \$200
5½-gallon tank, no. 5510SE, \$150
10-gallon tank, no. 10020C, \$370

One hand, no cord, plenty of power

18-volt trim router, no. R86044B, \$119

By running on a lithium-ion battery, this router eliminates the dangling power cord that can get in the way when routing. It has plenty of power for flush-trimming and routing edge profiles, and when using a Ridgid slim-pack battery (shown), felt well-balanced and easy to operate. (The bigger packs make the router just a bit more cumbersome.) Granted, the run time has a limit—depending on the battery-pack size and the bit you use—but a pair of battery packs should easily get you through a project.

—Tested by Kevin Boyle, Senior Design Editor

866-539-1710, ridgidpowertools.com



The **EASY DR**® Way to **TRIM** and **MOW**!

The **DR**® **TRIMMER MOWER** gives you 5X the power and NONE of the backstrain of hand-held trimmers!



NEW LOW PRICE!

TRIMS & MOWS thick grass and weeds without bogging down—the only trimmer guaranteed not to wrap!

ROLLS LIGHT AS A FEATHER on big, easy-rolling wheels!

THICKEST, LONGEST-LASTING cutting cord (up to 225 mil) takes seconds to change.



95893X © 2017

FREE SHIPPING 6 MONTH TRIAL

SOME LIMITATIONS APPLY

The only trimmer **GUARANTEED** not to wrap!

Call for **FREE DVD and Catalog!**

TOLL FREE

877-201-5353

DRtrimmers.com



NEW TOW-BEHIND MODELS FOR TRACTORS AND ATVS!

Never Lose Electricity Again!



Own the #1 Brand in Home Standby Power.

7 out of 10 buyers choose Generac Home Standby Generators to automatically provide electricity to their homes during power outages. GENERAC Home Standby Generators start at just \$1,899.*

CALL for FREE Generator Guide, DVD, and Limited Time

\$695 BONUS OFFER!

GENERAC



TOLL FREE

877-200-6611

FreeGeneratorGuide.com

*Price does not include installation.

95892X © 2017

THE FUSION M2 40

ENGRAVE IT. CUT IT. MARK IT.



- Large 40" x 28" engraving area
- Flame-polished edge cuts
- Laser tube wattages up to 120 watts
- Large viewing door with LED lighting
- Our highest CO₂ engraving and cutting speeds
- Engrave items up to 13.25" in height
- Dual source (fiber and CO₂)
- eView™ camera options
- Maximum substrate compatibility



Get **MORE INFO** or **SCHEDULE A DEMO!**

888.437.4564 | sales@epiloglaser.com

www.epiloglaser.com/bhg-wood



MADEiNUSA

Two machines, one footprint

Combination jointer/planer (G0809), \$1,495

Want both a jointer and planer, but can't dedicate floor space to both? This Grizzly combo machine takes up the footprint of just one of those, without the trouble of switching back and forth between the two functions. The G0809 includes a 13" planer and 6" jointer, with separate 3-knife cutterheads powered by one 2-hp, 120-volt motor. The jointer bed measures 46" long and stands 36" off the floor. The planer bed is 19¼"-long. The planer has feed speeds of 11 and 22 feet per minute. 🌲

800-523-4777, grizzly.com



EST 1928

WOODCRAFT®

QUALITY WOODWORKING TOOLS • SUPPLIES • ADVICE®

NEW FESTOOL Domino® Connector Set

Create, build, and finish full-sized constructed pieces, and then quickly disassemble, move, and reassemble them with only a hex wrench. This hardware works with the Domino XL (DF 700) Joiner to create flat or corner joints that provide simple and quick connections without the need for templates or complex measuring. Connectors require the use of a 14mm Domino cutter (sold separately).

This complete set includes all the hardware necessary to construct 32 complete corner connections, as well as 16 complete double-ended flat connections.

Includes:

- 32x Anchor Bolts
- 16x Double Headed Bolts
- 128x Dowel Shells
- 32x Expansion Bolts
- 64x Transverse Anchors with Studs
- 64x Widening Half-Shells
- Silver, Light And Dark Cover Caps, 32 Each
- 32x 14 x 75 Birch Dominos
- Instructions
- 4mm Hex Wrench
- T-LOC SYS 2



For A Free Catalog Or To Find Your Local Woodcraft Store, Visit woodcraft.com Or Call 800-225-1153. For Information On Woodcraft Retail Franchise Opportunities, Visit woodcraftfranchise.com 17W107H

SAVE UP TO
50% OR MORE
ON HEATING COSTS!*

* VISIT WWW.EHEAT.COM
OR CALL 1-800-807-0107



enviTM
WALL-MOUNTED ROOM HEATER

ENERGY SAVING
heats room as little as 4 cents per hour!*

ULTRA-SAFE
leave unattended 24/7; cool to the touch

HEALTHY
fanless - doesn't blow dust or dry the air, great for those who suffer from asthma or dry eye

SILENT
fanless design, auto dimming power light

STYLISH AND SLEEK
slim space saving design, 19" w x 22" h x 2" thin!

EASY INSTALL
installs in minutes, no drill required;
120v & 220v hardwired and plug-in models available

10% off coupon: **WDJJ10** | 2 or more 15% off coupon: **WDJJ15** | free shipping to the USA & Canada



ATTENTION GARDENERS!



Models
Starting
at just
\$399⁹⁹

**HUGE
DR[®]
TILLER
SALE!**

DIRECT PRICING • FREE SHIPPING!

New 2017 DR[®] Tiller line-up includes Rear-and Front-Tine Models, Tow-Behind Models, and Mini-Tillers—at BIG, Pre-Season Savings!

DRrototiller.com

95895C © 2017

**Grind Away ANY
Size Stump FAST!**



**LOWEST
PRICE
EVER!**

The **DR[®] STUMP GRINDER** uses carbide-tipped cutting teeth (taking 360 "bites" per second) to reduce any stump to a pile of woodchips. Grinds stumps below ground level so they are gone forever!

- Quickly eliminate any stump without digging, burning, or chemicals.
- New, more powerful and lower-priced models.
- Now towable with your riding mower or ATV.



95895A © 2017

DRstumpgrinder.com

**The Ultimate
Offroad
Trailer!**

**HAULS
up to
2000 lbs.!**



**440 lb.
LIFTING
CAPACITY**

The **DR[®] VERSA-TRAILER[™]** is the **ONLY trailer for offroad vehicles that—**

- Has a swinging boom for loading and unloading rocks, logs, balled trees, etc. with a back-saving winch.
- Empties cleanly every time, thanks to steep, boom-assisted dump angle.
- Converts to a stake bed trailer (in less than 5 minutes!) for harvesting trees and hauling long loads.
- Galvanized bed and frame tows easily behind ATVs, compact tractors and lawn tractors.
- Pivoting, tandem wheels "walk" over obstacles.

DRversatrailer.com

95895B © 2017

**FREE
SHIPPING** | **6 MONTH
TRIAL** | **EASY
FINANCING**

SOME LIMITATIONS APPLY. CALL OR GO ONLINE FOR DETAILS.

Call for a FREE DVD and Catalog!
Includes product specifications and factory-direct offers.

TOLL FREE **877-201-5353**





✓Yes



✓Yes



xNo



✓Yes



✓Yes



✓Yes

✓ Reliably Low Prices
✓ Easy To Use Website
✓ Huge Selection
✓ Fast Shipping
www.rockauto.com



All-New DR® CHIPPERS Larger Capacity, Lower Prices!



LOWEST PRICES EVER!

Starting at just **\$799⁹⁹**

CHIP BIG BRANCHES up to 5.75" thick!
SELF-FEEDING models available. No more force-feeding!

POWERFUL ENGINES spin big flywheels (up to 62 lbs.), generating massive chipping force!

MODELS THAT SHRED yard and garden waste as well as CHIP branches.

PTO MODELS TOO!



DRchipper.com

95894B © 2017

NEW and IMPROVED DR® Field and Brush Mowers

**Faster...Easier...
Lower-Priced!**

Mow fields, brush, even
3" thick
saplings
with never-
before ease...



- ✓ **NEW WIDE CUT MODELS** for faster mowing!
- ✓ **NEW POWER STEERING** for easier handling!
- ✓ **NEW LOW PRICES** reduced up to \$500!

ATTENTION: TRACTOR AND ATV OWNERS!
NEW MODELS starting at \$1399⁹⁹



ROUGH CUT & FINISH MOWERS—
the most complete selection available.

DRfieldbrush.com

95894A © 2017

FREE SHIPPING | **6 MONTH TRIAL** | **EASY FINANCING**

SOME LIMITATIONS APPLY. CALL OR GO ONLINE FOR DETAILS.

Call for a **FREE DVD and Catalog!**
Includes product specifications and factory-direct offers.

TOLL FREE **877-201-5353**



SPRAYPORT

The professional spraying series

Get a flawless finish with
The SprayPort® 6000 Series



- Compact and robust 2 or 3-stage base turbine
- Pro-8™ non-bleed gun in gravity or pressure-fed options for superior atomization
- 25-foot lightweight and flexible HyperFlex™ hose



Earlex®
BY **WAGNER**

For more information visit earlex.com

LOWEST PRICE EVER
on DR® Leaf and Lawn Vacuums!

Limited Time
SUPER SALE!

Now starting at just
\$1,199⁹⁹!

The **All NEW DR® Leaf Vacuum** is designed from the top down to make yard cleanup easier, faster, and more thorough than ever before. And for a limited time we are offering them at incredible low introductory prices!

- ✓ **Rated #1 in Vacuum Power**
- ✓ **Easy, 1-Hand Dumping**
- ✓ **Stores Flat in Minutes**
- ✓ **Converts to a Rugged Trailer**

FREE SHIPPING 6 MONTH TRIAL

SOME LIMITATIONS APPLY

Call for **FREE DVD and Catalog!**

TOLL FREE **877-201-5353**
DRleafvac.com



Unload with just one hand!



Doubles as a utility trailer!

96464B © 2017

BURN SAFELY

with the
Stainless Steel
BurnCage™

PERFECT FOR:

- Sensitive financial documents
- All burnable household waste*
- Old leaves and branches

STAINLESS STEEL CONSTRUCTION is lightweight, durable, and portable (it folds for easy storage).

PERFORATED LID and sidewalls maximize airflow and trap embers.

1600° TEMPERATURES mean more thorough burning with less ash.



No more
UNSAFE and
UNSIGHTLY
rusty barrel!



NEW
BurnCage™
MAX
2X
THE VOLUME
OF THE
ORIGINAL

Now Available
in 3 Sizes!

* Always check local ordinances before burning.

Call for **FREE Information Kit and**
Factory Direct Coupon!

TOLL FREE **877-201-5353**
BurnCage.com



96464A © 2017

MEASURE MOISTURE IN THE WOOD NOT ON THE WOOD



MOISTURE METERS
DESIGNED FOR WOODWORKING
PROFESSIONALS

www.wagnermeters.com
800-795-9916



How to Be Cut Off From Civilization

When it's you against nature, there's only one tool you need: the stainless steel River Canyon Bowie Knife—now **ONLY \$49!**

The *River Canyon Bowie Knife* hand-forged, unique knife comes shaving sharp with a perfectly fitted hand-tooled sheath. The broad stainless steel blade shines in harmony with the stunning striped horn, wood and bone handle. When you feel the heft of the knife in your hand, you know that you're ready for whatever nature throws at you.

This knife boasts a full tang blade, meaning the blade doesn't stop at the handle, it runs the full length of the knife. According to *Gear Patrol*, a full tang blade is key, saying "A full tang lends structural strength to the knife, allowing for better leverage ...think one long steel beam versus two."

With our limited edition *River Canyon Bowie Knife* you're getting the best in 21st-century construction with a classic look inspired by legendary American pioneers. What you won't get is the trumped up price tag. This quintessential American knife can be yours to use out in the field or to display as the art piece it truly is. But don't wait. A knife of this caliber typically cost hundreds. Priced at an amazing \$49, we can't guarantee this knife will stick around for long. So call today!



BONUS! Call today and you'll also receive this genuine leather sheath!

Not shown actual size.



Your satisfaction is 100% guaranteed. If you don't feel like we cut you a fair deal, send it back within 60 days for a complete refund of the sale price. But we believe that once you wrap your fingers around the *River Canyon's* handle, you'll be ready to carve your own niche into the wild frontier.

What customers are saying about Stauer knives...

★★★★★

"First off, the shipping was fast and the quality is beyond what I paid for the knife. Overall I am a satisfied customer!"

— D., Houston, Texas

River Canyon Bowie Knife \$79*

Offer Code Price Only **\$49** + S&P **Save \$30**

1-800-333-2045

Your Insider Offer Code: RCK261-01

You must use the insider offer code to get our special price.



Rating of A+

Stauer® 14101 Southcross Drive W., Dept. RCK261-01
Burnsville, Minnesota 55337 www.stauer.com

*Discount is only for customers who use the offer code versus the listed original Stauer.com price.



- Full tang 4 1/4" stainless steel blade, 9" overall length • Genuine horn, wood and bone handle • Polished brass guard and spacers • Includes leather sheath

Smart Luxuries—Surprising Prices™

All 244 issues of
WOOD



(actual size)

62¢

(actual price per issue)

The **WOOD** Archive on USB
Complete. Searchable. Compact.
\$149⁹⁵

Get yours today at woodstore.net/62cents
or call **888-636-4478**

UPDATED THROUGH 2016!

Previous archive owners: Trade up to the latest
Archive for only \$20! CALL FOR DETAILS

≡ Turn ≡
ORDINARY
INTO MASTERPIECE!



MAKE IT.

Bonds Everything
So You Can
Create Anything.



GIVE IT LIFE.

Vibrant Colored Gel Stain For Use
On Wood, Glass, Metal, Fabric,
Concrete, Laminate & More



PROTECT IT.

1 Step Finish Equals
70 Coats of Varnish



MADE IN USA by Eclectic Products
eclecticproducts.com



UNDER \$300...The Doctor's Choice For ADVANCED HEARING AID TECHNOLOGY

How can a hearing aid that costs less than \$300 be every bit as good as one that sells for \$3,000 or more? Tremendous strides have been made in Advanced Hearing Aid Technology and those cost reductions have not passed on to you--**Until Now.**

THE WORLD'S BEST HEARING AID VALUE



**NEARLY
INVISIBLE**

The MDHearingAid PRO® has been rigorously tested by leading ENT (Ear, Nose and Throat) physicians and audiologists who have unanimously agreed that the sound quality and output in many cases exceeds more expensive hearing aids.

"I recommend them to my patients with hearing loss" --Amy S. Audiologist Indiana

The fact is, you don't need to pay high prices for a medical-grade FDA registered hearing aid.

MDHearingAid PRO® is a high performance hearing aid that works right out of the box with no time-consuming "adjustment" appointments.

You can conveniently access a hearing specialist online or by phone---even after the sale. No other company provides such extensive support. Over 75,000 satisfied customers agree.

Now that you know, why pay more?

"I have had this aid two days and all I can say is WOW!" --Terra H., Grove, NJ

Outperforms Many Higher Priced Hearing Aids!

Since Medicare and most private insurance do not cover hearing aids, ENT surgeon Dr. Cherukuri designed a game-changing solution without sacrificing the quality of components that you can actually afford.

The result is the - MDHearingAid PRO®
starting out at under \$300

MDHearingAid®

Try It at Home with our
45-Day RISK-FREE Trial

If you are not completely
satisfied, simply return it within that time
period for a

100% refund of your purchase price.

800-318-5419

Use Code: **DC81**

For a Year Supply of

FREE BATTERIES

and
FREE SHIPPING

MDHearingAid300.com

ATV

ATTACHMENTS H.Q.

Your Headquarters for Every Tow-Behind ATV Tool!

☒ **FACTORY-DIRECT PRICES!**
☒ **FREE SHIPPING!***

☒ **EASY FINANCING!**
☒ **6-MONTH TRIAL!**

SAVE UP TO \$500

- Trailers
- Harrows
- Cultivators
- Spreaders
- Mowers
- Tillers
- Backhoe
- ... and More!

*Limitations apply. Call for details.

CALL TODAY and receive a FREE BUYER'S GUIDE!
1-888-212-8705 | DRpower.com/ATV

96463X © 2017

16 Page Catalog Plans/Parts \$2 FREE with order

Visa/MC call 800-292-8296
armorplans.com

Axle Peg 7/32 dia
 Great for wheels below \$4 /50 \$6 /100

Wood Toy Wheels size is diameter

WT-1	\$7 /50
WT-114	\$10 /50
WT-112	\$11 /50
WT-134	\$17 /50

Hardwood Spindles

11" Birch	\$22/10
11" Birch	\$40/20
11" Oak	\$22/10
11" Oak	\$44/20
9" Birch	\$22/10
9" Birch	\$27/20
9" Oak	\$22/10
9" Oak	\$40/20
5 1/2" Birch	\$10/20
5 1/2" Oak	\$15/20

Birch Shaker Peg 3-1/2"
 #51019 \$16/50 \$27/100

Prices Good Thru Aug 2017
 Shipping USA orders to \$15 Add \$4.50
 orders over \$15 add \$6.95

Armor Box 576 Monterey TN 38574

KINEKT

INTERACTIVE JEWELRY

GEAR RING & GEAR NECKLACE

sold separately

FREE SHIPPING & LIFETIME WARRANTY
888-600-8494 kinекtdesign.com

ROCKLER

WOODWORKING AND HARDWARE

Create with Confidence™

FREE

Get your **FREE** catalog today at
www.rcklr.co/229 or
 call 1-800-279-4441 (Code 229).

Instructional DVD & Supplies

Learn Metal Inlay

www.metal-inlay.com
570-937-9400

Can Your Old Dust Collector Work Better Than A New One?

Cyclones, Stand-Alones, Baghouses & more

Yes, With Optimized Filters From...

- Optimum Performance
- Low Maintenance
- Custom Designs
- Cleaner Air
- Longer Life
- Economical
- Best Size & Fit
- Proudly Made in USA

6 Mil Poly Bags In Stock!

We Design & Fabricate Custom Filter Bags That REALLY WORK!

American Fabric Filter Co.
 (800) 367-3591 americanfabricfilter.com

COOK WOODS

Exotic & Domestic Woods

The Worlds Finest Selection
 Slabs • Turning Wood • Lumber

ORDER ONLINE AND SAVE!!!

1-877-672-5275
www.cookwoods.com

4-WAY

MONEY MAKER!

60-Day FREE TRIAL

Like Having a Lumberyard Right in Your Shop!

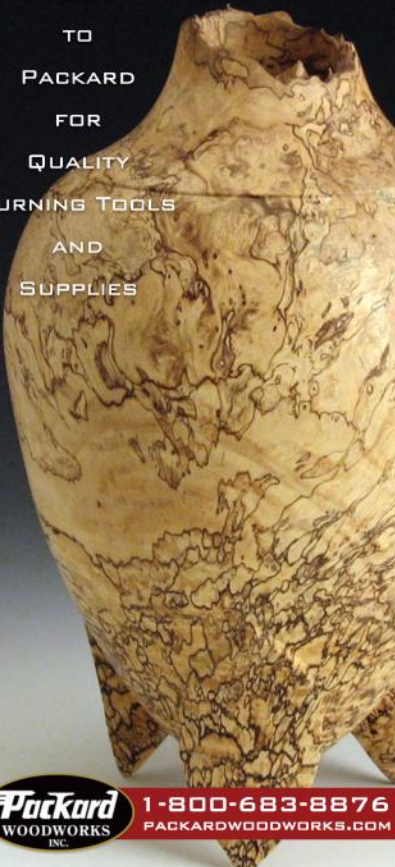
Now, turn a \$5 board into \$75 worth of high-dollar molding in less than one minute! Over 600 patterns plus curved molding, tongue & groove, picture frame stock, custom work. Quickly CONVERTS to molder, planer, sander, saw. 12", 18" & 25" models, 60-Day Free Trial, 5-Year Warranty. Made in USA!

FREE DVD & BUSINESS STARTER KIT!

- MOLDER**
- PLANNER**
- DRUM SANDER**
- GANG RIPSAW**

www.woodmastertools.com
 Toll Free 1-800-821-6651 Ext. P395
 Woodmaster Tools, Inc. P.O. Box 34312, Kansas City, MO 64120-4312

TURN
TO
PACKARD
FOR
QUALITY
TURNING TOOLS
AND
SUPPLIES



Packard
WOODWORKS
INC.

1-800-683-8876
PACKARDWOODWORKS.COM

- EXCLUSIVE -

MEGA DADO & PLANER BIT

Features Our 2+2 Shear Angle Geometry!

"This bit was fantastic. It cut with almost no tearout, even around the knots and irregularities. After the two slabs were flattened, the bit was still sharp."

Nick Offerman, Fine Woodworking, No. 222



INFINITY
CUTTING TOOLS

SHOP 1,000'S OF INNOVATIVE
WOODWORKING TOOLS & ACCESSORIES!

INFINITYTOOLS.COM • 877-USA-BITS

RENEW Your Driveway...

...with the **ALL-NEW**
DR® POWER GRADER!

SAVES YOU MONEY—loosens and redistributes existing material, saving you from purchasing new gravel or stone.

EASY TO USE—tows behind your ATV or riding mower, filling in potholes and ruts.

PRECISE CONTROL of grading depth is adjustable from your driver's seat.



FREE SHIPPING 6 MONTH TRIAL

SOME LIMITATIONS APPLY

Call for **FREE DVD and Catalog!**

TOLL-FREE

877-201-5353
DRpowergrader.com



An Innovation in
Power Tool Woodworking
for the Small Shop



**ROUTER
BOSS**

Router Jig & So Much More

See the Router Boss
in Action at chipsfly.com
or call 513.233.9019

**GREAT SAWMILLS.
SHOCKING VALUE.**



N Premium band sawmills from only \$4397. Get your Free Info Kit.
info@NorwoodSawmills.com | Toll-free 800-661-7746 EXT. 392

NORWOOD
NorwoodSawmills.com

Projects and Plans



Wheelbarrow

Kit to build includes 15" iron wheel that really works, axle and step-by-step plans. Finished project measures 66"L x 24"W x 26"H. \$55.90 P.P.D.

ByeGone Workshop
888-279-3941 8-5 M-F EST
www.bye-gone.com

Baltic Birch Plywood

Easy Shipping & Great Pricing

- ✓ 1/8" to 3/4" thick always in stock
- ✓ Choose your width & lengths
- ✓ No minimum order!
- ✓ Fast & friendly service

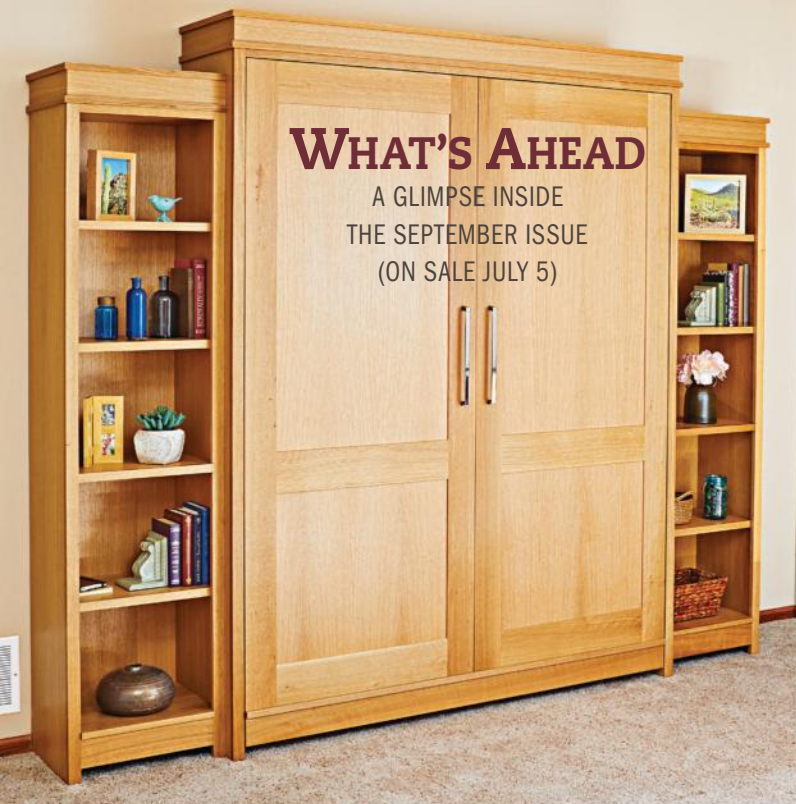


Secure Online Ordering
www.BalticBirchPly.com

Woodworkers Source 800-423-2450    

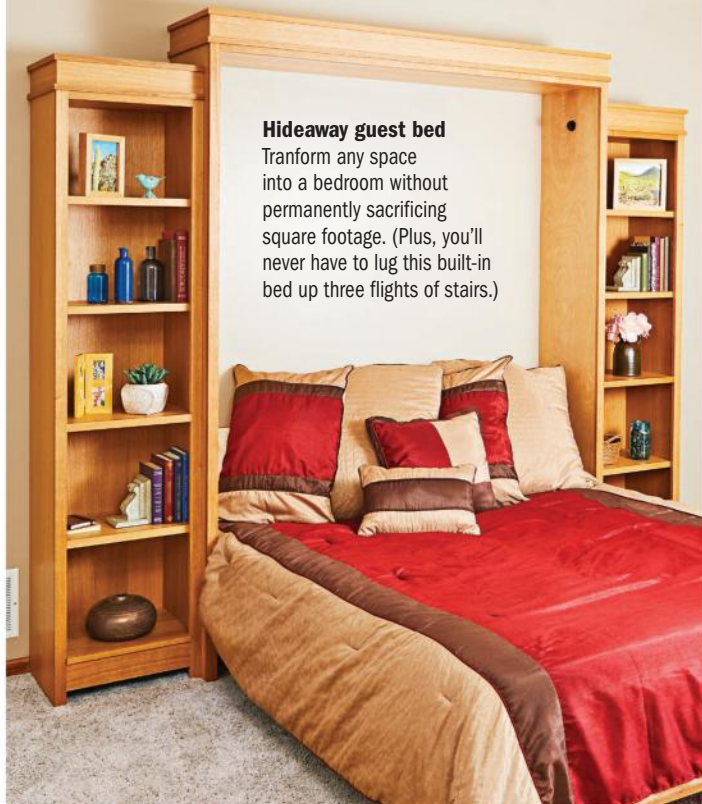
WHAT'S AHEAD

A GLIMPSE INSIDE
THE SEPTEMBER ISSUE
(ON SALE JULY 5)



Hideaway guest bed

Transform any space into a bedroom without permanently sacrificing square footage. (Plus, you'll never have to lug this built-in bed up three flights of stairs.)



Tool tote

With this handsome hauler, take only the tools you need to punch out that honey-do list.



Easy-build smoker

Like to smoke? This propane-fired project slow-cooks enough meat to feed a church picnic yet costs less to build than units with half the cooking surface.



Maximize your materials

Of all the traditions in woodworking, frugality may be the most time-honored and deeply held. Learn how to get the most yield from solid stock and sheet goods.



Make Money In Metal Art

*The PlasmaCAM machine makes it easy for you to cut intricate metal shapes that really enhance your wood projects. Call with this code **MAPXD** for your free demo video to see what you can do with this amazing machine!*



Ask about our exclusive Art Discs with ready-to-cut artwork!



"We used to cut everything by hand and had a lot of trouble. Now our PlasmaCAM does it all, attaining levels of production not thought possible before. It's run 40-50 hours a week for the past three years. It attains incredible detail, is very easy and cost efficient to operate, and requires little maintenance. The bottom line is: *this machine makes me money!*"

-Jon, Restaurant Lighting & Fixtures

PO Box 19818 • Colorado City, CO 81019-0818
(719) 676-2700 • www.plasmacam.com

**Plasma
CAM**_{Inc.}

Turn your ordinary single stage dust collector into an **extraordinary** cyclonic dust collector!

**Super
Dust
Deputy®**

Clean Air to
Collector.

Dust collector, hoses
and drum not included.

Dust In

99% Here

Collects 99% of the waste before it reaches your dust collector. No more clogged filters. Airflow stays high and more consistent.

Build Your
Own System!

**We have a dust collection
solution for every shop!**



Made from static
dissipative
molded industrial
resin for
lightness and
durability.



Made in
USA
U.S. Patent
#7,282,074
Design Pat.
#D703,401



Call Today for Information
1.800.732.4065

To Learn More Go To:
www.oneida-air.com/sddwm