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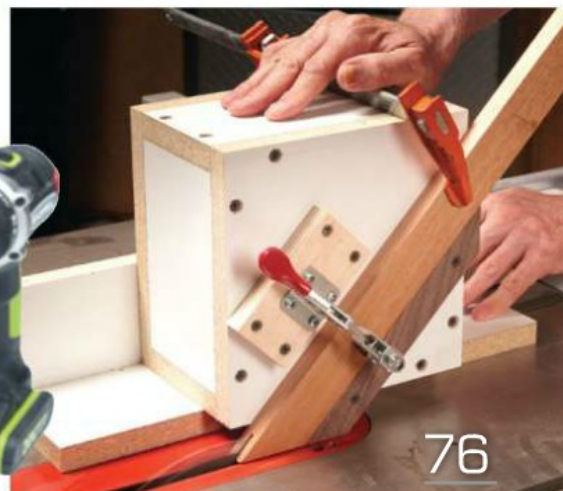
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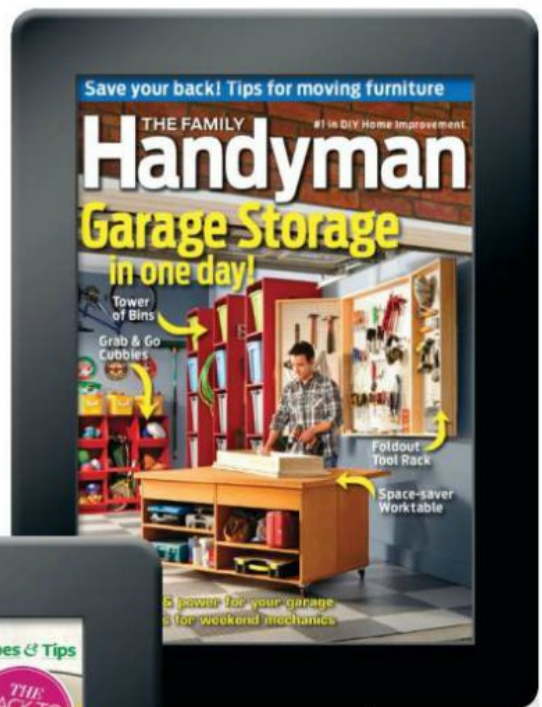
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Tips for Easier Gardening

No-stick shovel

Whether you're dealing with wet snow or muddy soil, a dose of spray lubricant on your shovel will make the shoveling job a lot easier. Use a lubricant that contains silicone or Teflon and avoid the shovel's edge.

More easier gardening facts and tips

Clever Cleaning Tips

Clean dirty, greasy, glossy surfaces

The results of a simple surface cleaning with mineral spirits may surprise you. Polish furniture and the dirt embedded in it can muddy the finish, but will wipe away. Don't use stronger solvents; they might damage the finish.

Soak a coarse, absorbent, clean cloth with mineral spirits and use the brush. Keep scrubbing and wiping until the cloth no longer picks up dirt. There's a final step with a fresh, clean rag.

More clever cleaning tips

How to Get Rid of Bugs

Disrupt the ant trail

Disrupt the ant trail so more ants won't follow it. Smudge the vinegar and water then spray it where you've seen ants to cover the ant scent.

More tips for getting rid of bugs

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garden lanterns.



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GOT A DIY QUESTION?

Finding answers is easy at familyhandyman.com. Just use the search box at the top of the page to get expert step-by-step help with your project. Or register on the site and join our DIY Forum, where you can ask questions or give advice.

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STUFF we love

BY TRAVIS LARSON

editors@thefamilyhandyman.com



CORDLESS TRIM NAILER

Ryobi has a huge number of tools powered by the same 18V Lithium-ion batteries, a system it calls ONE+. Now you can add one more—the unusual AirStrike cordless nailers. We've been using the 18-gauge brad nailer, and it's a very handy, though somewhat specialized, tool. It has a piston that's driven by the battery, creating enough air pressure to drive nails from 5/8 in. up to 2 in. in length.

As a nailer, it has a full suite of up-to-the-minute features: dry-fire prevention,

easily adjusted depth and pressure, both single and bump firing, and an excellent LED light (look for that on a regular air nailer!) And talk about convenient! No compressor, no hose—just grab a battery and it's good to go. The tool is \$130 without batteries or charger. There's also an AirStrike 16-gauge trim gun and an AirStrike stapler.

If you're thinking about getting your first nailer, we recommend a conventional one. For \$190, you can buy a good-quality

compressor, hose and brad nailer. Adding other nailers is fairly inexpensive, you can power a framing nailer and the whole rig will last for decades. However, we have to admit that it's pretty darn handy to have a cordless nailer for overhead work or for the small job where dragging out a compressor and hose would be a pain. That's doubly true if you already own some ONE+ tools, the batteries and a charger. You can buy the Ryobi AirStrike at The Home Depot.

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THE NEW CHAMP

A few years ago, Rockwell's Sonicrafter won our "Best Overall" award for oscillating tools. Its new F50 model is even better. Designed for fast cutting, it has a 4-amp motor

(most oscillating tools pack 3 amps or less) and an oscillating angle of 5 degrees (most are about 3 degrees). That wider oscillating angle cuts more aggressively, but you

sacrifice a little precision and control. The LED headlights are also a nice upgrade.

But the things we like best about the F50 are the same things we loved about its ancestors: smooth, quiet operation; a carrying case

with convenient accessory storage; and above all, a tool-free accessory-attachment system that works with every accessory brand we could find. It sells for about \$140. To learn more, visit rockwelltools.com.



Kick the (varnish) can!

Let's face it—those 1-qt. varnish, shellac and stain cans are stupid. You can't effectively seal them once they're open because the rim gets polluted with finish. They're hard to pour from, and the oxygen in the can causes the finish to skin over in a few months.

Fortunately, there's a better way to store finishes. StopLossBags, by Finishing Solutions, are made of three layers of special plastic to keep oxygen out and solvents in. Pour in the finish, squeeze out the air and screw on the cap. Your finish will last for a very long time. When you're ready to use it, pour some into a clean dipping container to dip your brush in. The varnish in the bag will remain pristine, unlike when you dip from the can. Buy four of them for \$17, including shipping. Check out other options at stoplossbags.com.



Itty-bitty screw gun

If you've ever done repairs on a cell phone, laptop or remote control, you know the screws are tiny and often driven into plastic stand-offs. So they can be difficult to remove with a small screwdriver. That's where this battery-powered precision screwdriver helps. Just load the correct bit and hit the forward/reverse button to zip the screws in or out. It's not an impact driver, but it has enough power for these small fasteners. The unit comes with six small-format 4mm hex bits (two Phillips, two flat-blade, T-5 and T-6 star bits). It runs on two "AAA" batteries, so you don't have to worry about keeping it charged. The General Tools Power Precision Screwdriver, model No. 500, is \$20 at homedepot.com.

Mighty wood splitter

My neighbor, Ed, heats his house entirely with wood. He cuts and splits about five cords of wood every year—by hand, for the “exercise.” I figured he’d be the perfect person to try out Wilton’s BASH splitting maul for this year’s annual five cords. Believe me, this thing has been tested in the real world.

Ed loves the maul, describing it as well balanced, with great splitting action. He says it’s absolutely indestructible. In fact, Wilton will send you a check for \$1,000 if you manage to break the handle under normal use within two years of purchase.

Go to wilton.com to check out the four options for weights and handle lengths and to find a retailer. Be sure to call your store of choice to confirm availability before making the drive, or shop online. Expect to spend \$80 to \$100. By the way, if you need a bulletproof maul or sledgehammer, you’ll find BASH versions of those more widely available.

Travis Larson, Senior Editor



A dream trailer for DIY

For 20 years I had a cheap, funky 4 x 8-ft. utility trailer that I used for all sorts of DIY jobs: hauling dirt, leaves, lumber, remodeling debris—you name it. It was enormously useful but not without problems. Gradually I developed a picture of what the perfect trailer for my DIY life would look like. Last year I went to a custom trailer builder (yes, they exist) and had my dream trailer built.

Here’s what it has:

- Built-to-last construction: galvanized steel, full-size tires, marine plywood box, heavyweight rating.
- Low-maintenance, sealed LED lighting.
- A 5 x 8-ft. bed, so plywood fits in easily, as well as a riding mower.
- An extra-long tongue, so I can put 16-ft. lumber on the trailer without bumping the back of my car.
- Removable “canoe racks,” which I use to carry long lumber on top of the trailer when the inside is full of insulation, tools, beer, whatever.
- Removable front and back of the trailer box, for easier hauling of long, heavy items.

I’ve used the trailer for one season, and it’s everything this DIYer could ask for. It was a splurge, at \$2,200. I could have gotten a stock trailer for less than \$1,000, but I hope to pass this trailer on to my children someday. Mine was built by Dennis Remackel, located in Minnesota (remackeltrailers.com), but custom trailer builders can be found in most metro areas.

Ken Collier, Editor in Chief

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Plant trees like a real forester

Last spring, my husband and I received 200 white pine seedlings—for free! All we had to do was plant them on our northern Minnesota property. Savvy friends suggested we use a planting bar instead of a spade for our rocky soil, which was still partially frozen. A planting bar is the same tool that professionals use to reforest vast areas with thousands of seedlings.

You just push it into the ground with your foot, push it away to create a slit, drop in the seedling and pull it back so the soil falls back into place. The whole operation takes about 30 seconds. I found the JIM-GEM KBC Bar online at forestry-suppliers.com for \$42. We planted all 200 seedlings in two days. Who knows, maybe next year we'll plant 400!

Marcia Roepke,
Art Director



Swiss Army knife of screwdrivers

For decades I carried 4-in-1 screwdrivers in my tool belt and used them all around the house for DIY projects. They're great tools. But lately, I've been using more star-drive and square-drive screws, and my old 4-in-1 can't drive them. So I've been trying a couple different screwdrivers that handle multiple bits.

One of my favorites is the Ideal 11-in-1, which set me back \$14 at The Home Depot. It has the usual small and large slotted and Phillips bits, plus two sizes of square drives, two sizes of Torx tips and two sizes of outdrive. What's that, 10 total? Well, the 11th is pretty handy, too: a wrench for wire connectors, to save yourself some thumb-ache. The screwdriver is designed for electricians, but I say it's a darn handy screwdriver for everyday use too.

Ken Collier, Editor in Chief



DIY WORK WEAR

MY FAVORITE WORK SHIRT

Call me old school, but I love a well-worn chambray work shirt, especially when the weather gets a little cool. Over the years, I've worn at least four or five different brands, but the one I come back to is by Carhartt.

Here's why: It's all cotton, in a medium weight that is comfortable indoors and out. It's got two button-down chest pockets and long tails that stay tucked in. It comes out of the dryer looking good. All basic stuff. But Carhartt also didn't muck it up: no funny-looking buttons, no obtrusive branding, no double-wide or beanpole cut. You could wear this shirt to change your oil or go to church (well, at least while it's fairly new). If I could use the word "classy" for a work shirt, I'd use it on this one. Try one out. The shirts cost about \$40 for long sleeve and \$36 for short sleeve, and come in a half-dozen colors. Check it out at carhartt.com. Buy one online or at work-wear retailers.

Ken Collier, Editor in Chief

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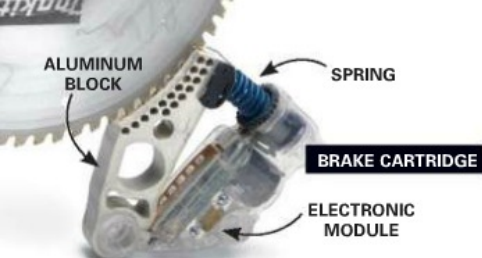
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FINGER-SAFE CABINET SAW

We've had the cabinet version of SawStop's 10-in. table saw in our studio workshop for 15 years now, and so far all our fingers and hands are intact. That's not just because we're careful, either. As many of you may know, SawStop has a unique cartridge surrounding the saw blade (shown above). When it senses flesh touching the blade, it instantly slams a block of aluminum into the blade to stop it, and almost as quickly, the blade drops below the table. We've actually slammed a salami into the blade, and the meat sustained a very small cut that could be covered by a Band-Aid. According to the government, people lose about 4,000 fingers a year in table saw accidents.

If you're a serious woodworker or pro, you might consider one of the two cabinet saws: a 1.75-hp 110-volt model priced at \$2,300



plus shipping, or the 3-hp 220-volt unit for \$3,000. But if you're more of an occasional "table-sawer" and would like to save cash—and fingers—consider the 1.75-hp 110-volt contractor's saw for \$1,800. That's a fair bit of change for any of the saws, but after you cut off a finger or two, it would seem pretty cheap, right?

One more thing. These saws aren't gimmicks. They're top-notch saws rivaling the cutting accuracy and quality of any other saw

in their class. We've been extremely happy with ours and use it nearly every day. The only trips we've had were false ones. It turns out that foil-backed material will trip the saw, as will bumping a board into the side of the spinning blade. Any trip will set you back about \$80 for a new cartridge, plus the cost of a new blade, so you still have to use common sense. Go to sawstop.com to watch videos, find retailers and see all kinds of other cool stuff.



One heck of a hammer

We recently tested a couple dozen hammers ("Best in DIY: Hammers," June '14), and discovered a few modern-style hammers that we really liked. Here's another that's at the top of the field: the Vaughan RS17.

First off, it just looks awesome. And it has all the features we look for: solid steel construction, magnetic nail holder, smooth face and straight rip claws. It's considered a framing hammer because the handle is a little longer, but with only a 17-oz. head, it is reasonably light and feels great in the hand. Best of all is the nail-puller slot on the side of the head, which allows you to get tremendous leverage on stubborn nails. And to top it off, it's made in the U.S.A. You can buy one for \$25 at amazon.com and some home centers.



One-handed wonder

Groove joint pliers are a plumber's best friend. They're ideally suited to lock onto pipes of many sizes. Husky has recently improved an already handy design so that you can adjust the jaws with just one hand. And that's important when you need the other hand to hold the pipe in place. All you do is wrap the pliers around a pipe and squeeze. It automatically locks in place when both jaws contact the pipe. And you can't beat the price. Pick up a 10-in. Husky Self-Adjusting Groove Joint Pliers, No. 48064, for \$11 at The Home Depot.

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4

**Best in
DIY**

CIRCULAR SAWS

by Jeff Gorton

editors@thefamilyhandyman.com

With so many circular saws to choose from, it can be hard to know which saw to pick. To help you out, we selected top models of 7-1/4-in. sidewinder saws from the most popular brands and compared them. With one exception, the saws all have 15-amp motors and spin at between 5,200 and 6,200 rpm.

The saws range in price from about \$60 to \$150, and most are available at home centers or hardware stores. After comparing features and cutting ability, we chose a few saws to receive Editors' Choice awards for Best Overall and Best Mid-Priced Saw.



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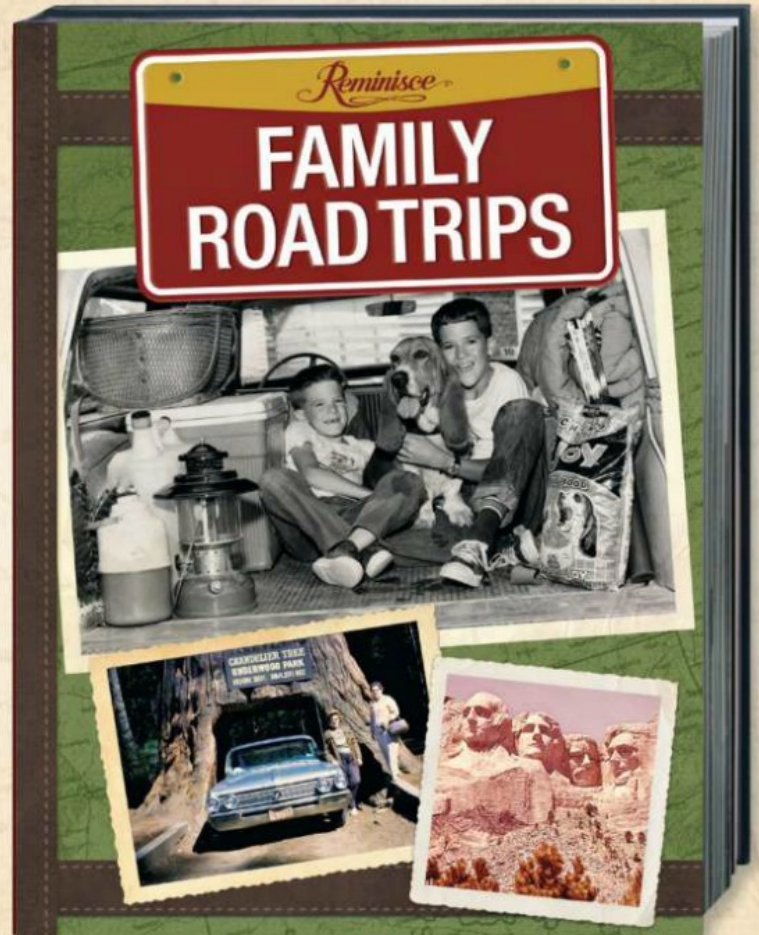
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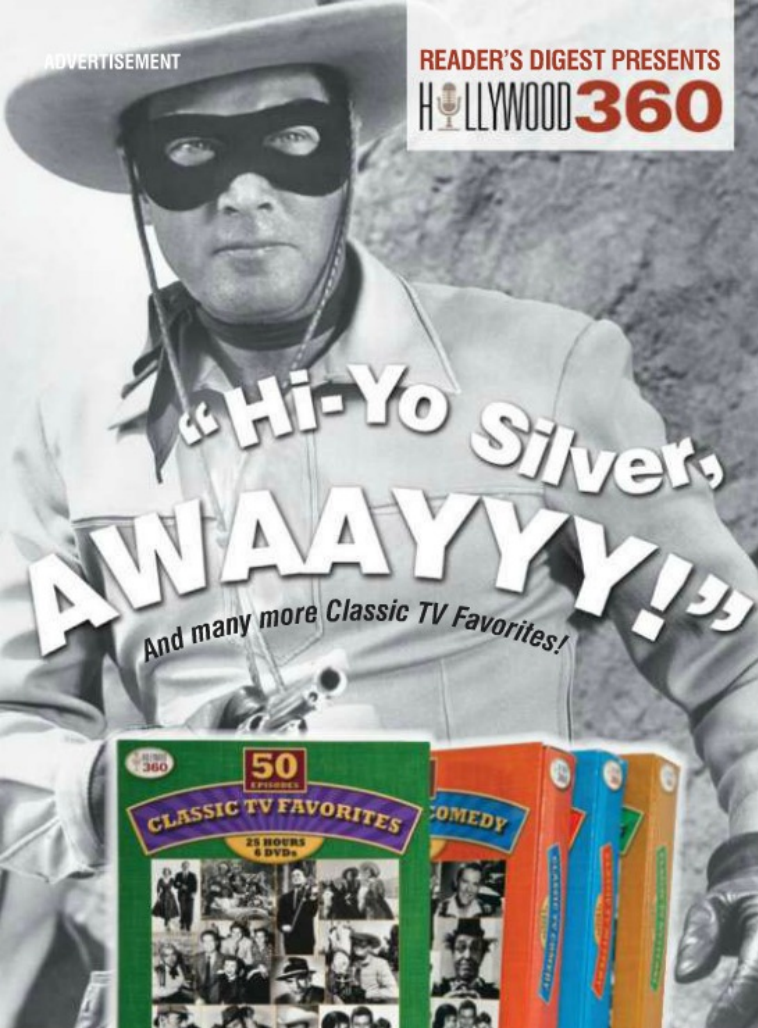
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2014 Best in DIY

HOW WE TESTED

We assembled five staff members with about 80 years of combined carpentry experience, gave them a big pile of lumber and proceeded to turn the boards into kindling. We crosscut with and without a straightedge guide, ripped, and then tried the ultimate torture test: a 45-degree by 45-degree compound angle cut across a 2x10. We also lined up the saws and compared comfort, balance and features.



How does it feel?

All of these saws performed well when fitted with the same 24-tooth carbide blade. Beyond the specific set of features you're looking for, one of the most important considerations in buying a saw is how it feels in your hands. Unfortunately, you don't have the luxury of 13 saws lined up in front of you like we did. But you can still visit two or three stores and get a good idea of which saws you find most comfortable. Despite the fact that the DeWalt saw has a simple grip with no added rubber or other enhancements, we all think it's one of the most comfortable and well balanced saws in the group. If you work in a cold climate, be sure you also try out the saws with a pair of gloves on. Some of them may not have enough clearance around the trigger for gloved hands.



Aluminum or magnesium shoe

Steel shoes are common on less expensive saws, and they have a few downsides. First, they can bend if you drop the saw. And a bent shoe can cause your saw to cut poorly. Also, the rolled edge on a steel shoe can be a problem if you're using a thin straightedge like a rafter square for a saw guide. The saw can slip over the top of the guide and ruin the cut. We prefer aluminum or magnesium shoes with crisp, square edges. The more expensive saws in this group all have excellent shoes.



Extra bevel capacity

With the exception of the Black & Decker, all of these saws cut bevels beyond 45 degrees. It's rare that you would need to cut such steep bevels unless you built a lot of hand-framed roofs. But it's a nice feature to have. Many of the saws have included detents, or stops, for common angles like 22-1/2 and 45 degrees. On some saws these features actually get in the way of normal bevel setting. But Makita has what we think is the perfect system. You can set a positive stop by rotating the knob to either 22-1/2 or 45 degrees. Otherwise, there are no detents to interfere with the smooth operation of the bevel adjustment.



Easy depth adjustment

Changing the depth of cut on a circular saw requires you to loosen a lever and move the shoe up or down. There are two depth-adjusting features worth comparing in this group of saws. First, some saws have what we're calling an "outboard" lever; that is, the lever is located to the left of the handle where it's more accessible.

We like this feature. Also, while most of the saws have some type of cutting-depth scale, the Bosch, Craftsman, Makita, Ridgid and Skil saws have exceptional scales that are easy to read. Bosch has gone one step further and included detents at common depth settings, making it quick and easy to go from cutting a 2x4 to cutting 1/2-in. plywood while maintaining the perfect blade depth.

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Work lights

If you're young and can still see well in dim light, you may not care about this feature. But we liked the work lights on the Craftsman, Makita and Kobalt saws. The LED lights illuminated the cutting area enough to allow us to follow the line easily even in dim light.



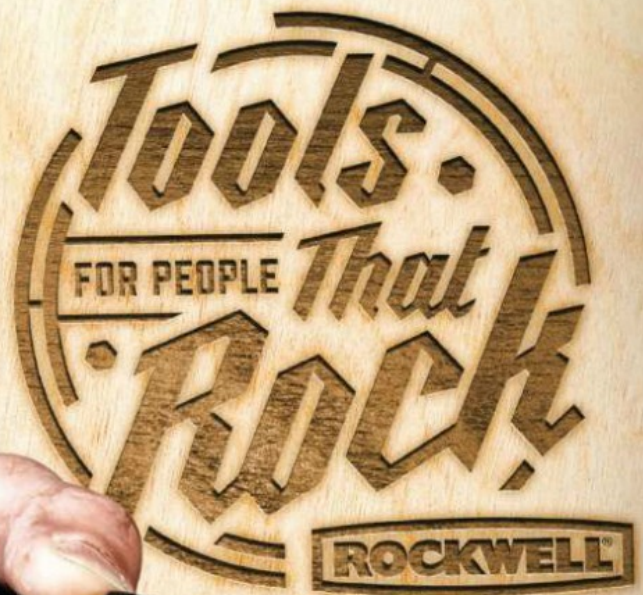
Laser cutting guide

We're not big fans of lasers. The Craftsman and Ryobi saws include lasers, and we experimented using them as an aid for lining up the saw and following a line. If you're not an experienced carpenter, you may find this feature helpful. But we wouldn't factor this into the decision when considering one saw over another.

Onboard blade wrench

When it comes time to change your saw blade, it's nice to have the wrench handy. The Black & Decker, DeWalt, Kobalt, Makita, Ridgid, Ryobi and Skil saws have wrenches stored on the saw or attached to the cord. We like saws that also allow you to use an Allen wrench to change the blade. Allen wrenches engage better, reducing skinned knuckles from a blade wrench that slips. With the exception of the Black & Decker, all the saws include a spindle lock to prevent the motor shaft from rotating while you loosen the blade nut—an essential feature, in our book.





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Obviously, a \$60 saw isn't going to have the same features as a \$150 saw. However, we were surprised to discover that when fitted with the same top-quality 24-tooth carbide blade, these saws seemed very similar in their ability to cut smoothly without bogging down. We've chosen a few saws that stand out, but the truth is, all of these are strong tools.



Makita 5007MG

Cost: \$150 **Weight:** 10.3 lbs.

When we tested the saws, we ranked each one in several categories including bevel and height adjustments, comfort, quality of cut and so on. This saw was the hands-down winner. From its ingenious bevel stop setting to its work light, the saw includes every feature you could want. The handle and levers are large and comfortable. The bevel detents are perfect, and the depth-of-cut scale is easy to read. Of course it's also the most expensive saw in the group. But if you can afford it, you can't go wrong with this saw.



Porter-Cable PC15TCSM

Cost: \$80 **Weight:** 9.4 lbs.

In the middle of the price range, this Porter-Cable saw is lightweight and comfortable. It has an outboard height-adjust lever and nice bevel detents at 22.5 and 45 degrees. The saw has a magnesium shoe. Overall, it's an excellent saw at a great price.



Black & Decker CS1015

Cost: \$60 at Lowe's **Weight:** 9 lbs.

Like most inexpensive saws, this saw has a steel rather than aluminum or magnesium shoe, and basic bevel and height adjustment features. Instead of a spindle lock, this saw requires a proprietary two-prong wrench to change the blade. Luckily, the blade-change tool is stored on the saw. Just don't lose it. This saw is comfortable to hold and cuts well.



Bosch CS10

Cost: \$99 **Weight:** 10.7 lbs.

This Bosch saw was obviously designed with the pro framer in mind. It includes a built-in hook for hanging your saw from framing members, and a rafter-angle guide printed on the motor housing. Plus, it's a powerful, smooth-cutting saw with tons of nice features.

The blade depth scale is easy to read with detents at 1/4, 1/2, 3/4 and 2x. And the depth is easy to adjust with the large outboard lever. Our only quibble with this saw is the bevel detents. They restrict the free travel of the bevel adjustment just enough to be a slight hindrance. But other than that, we love this saw.



Bostitch BTE300

Cost: \$90 **Weight:** 9.9 lbs.

Here's another great mid-priced saw. It has a large bevel lever with bevel detents at 22-1/2 and 45 degrees. The depth control lever is inboard and the scale is a little difficult to read, but these are minor complaints. If you're looking for a comfortable, lightweight saw, this one is worth checking out.



Craftsman 27311

Cost: \$140 **Weight:** 10.6 lbs.
The saw includes a laser, an LED work light, a huge outboard depth-adjust lever and an easy-to-read depth scale. There are no angle detents on the bevel adjusting scale. To go beyond 45 degrees, you simply swing out a small hinge stop. We think this is a good solution. This saw has a great set of features at a competitive price.



DeWalt DWE575

Cost: \$120 **Weight:** 9 lbs.
This is a no-frills saw that feels and sounds great. It's the lightest saw of the bunch with a very comfortable grip, and is noticeably quieter than many of the other saws. There's no outboard height-adjust lever, depth scale or work light. But the saw does include an aluminum shoe, a special "tough cord" feature and nice bevel detents. We highly recommend this saw for its comfortable feel and smooth-running motor.



Hitachi C7SB2

Cost: \$80 **Weight:** 10.8 lbs.
The first things you notice about this saw are the large metal bevel and height-adjust levers. They're very comfortable to use and add a quality feel to the saw. I'm sure you would learn how to overcome it, but the saw has one feature we found annoying. If you're not careful, at 45 degrees the adjusting lever drops into a slot that allows you to go beyond 45 degrees. Then you have to fiddle with the lever to get it out of the slot to return to a square cut. The saw includes an outboard depth adjust lever but no depth scale.



Kobalt K15CS-06AB

Cost: \$90 **Weight:** 9.5 lbs.
This Kobalt saw has a large outboard height-adjust lever and a depth scale on the side of the blade cover. The depth scale is a little difficult to read, though. The saw has a 12-ft. cord, 2 ft. longer than the closest competitor's. The saw also includes a work light and onboard blade wrench storage. But it has the same annoying "drop in past 45 degrees" slot that we found on the Hitachi.



Milwaukee 6390-20

Cost: \$150 **Weight:** 11 lbs.
Milwaukee has a reputation for making industrial-quality tools, and this saw is no exception. It has a unique Tilt-Lok feature that allows you to slide the handle up or down for the most comfortable work position. There are no bevel detents, but the bevel and height-adjust levers are large and comfortable. For an additional \$30 or so, you can get the upgraded model No. 6394-21 with a removable Quick-Lok cord and electric brake.



Ryobi CSB143LZK

Cost: \$75 **Weight:** 7.6 lbs.
Given this saw's economy features like a steel shoe, small plastic knobs and a plastic blade guard, we didn't expect much. But we were surprised at how comfortable the saw was to hold and how well it cut. If you're looking for a lightweight basic saw and don't want to spend a lot of money, this Ryobi is worth checking out.



Ridgid R3205

Cost: \$99 **Weight:** 11 lbs.
One of the best features of all Ridgid power tools is the lifetime warranty. This saw also includes easy-to-read bevel and height-adjust scales, an onboard wrench and a sawdust blower. It's one of the heaviest in the group, but if you don't mind the weight, it's a great saw for the price.



Skilsaw SPT67WM-22

Cost: \$129 **Weight:** 9.4 lbs.
Available Nov. 1. This lightweight magnesium saw has a precise bevel scale with easy-to-read markings and a unique stop at 45 degrees. To go beyond that, you push a spring-like lever. The depth gauge is easy to read. This was one of the few saws on which the blade guard retracted smoothly for making a 45-degree compound miter cut. This is a great saw that we highly recommend.

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FROM OUR READERS

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COLOR-CODED TOOLBOXES

I have different toolboxes for different jobs around the house. Occasionally I'd grab a tool out of one box and then put it away in another. Eventually all my flat-head screwdrivers would end up in one toolbox. To solve the problem, I now mark the handles of the tools and the corresponding toolbox with a band of colored electrical tape. Now all the tools are in the box where they belong.

Kim Litkenhaus Marino



READER PHOTO

Clothespin hamper

Our old cloth clothespin hamper finally fell apart. I noticed that an empty plastic plant hanger basket could be a great replacement. It just needed a thorough cleaning and a couple of extra 1/4-in. drainage holes drilled into the bottom. The plastic hook slides easily along the line, and the basket has more than enough room for our clothespins.

Ruth Kallen



TARP I.D.

When I buy a new tarp, I write down the dimensions on a tag with a Sharpie marker and attach it to the corner of the tarp. I use the old bulk-item tags I get from the grocery store, but any tag that stays put will work. Now I can grab the right size tarp for the job instead of unfolding each until I find the right one!

Nathan Edward





QUICK PAINT TOUCH-UPS

If you have touch-up work that's not worth dirtying a paintbrush, try makeup rounds. These smooth pieces of cotton are about the size of a silver dollar and they won't shed. You can use them to apply dabs of stain, oil or paint. We've even used them to touch up nail hole patches. You can find them near the cosmetics at drugstores and discount stores.

Jan Olsen



Spray tube holster

I used to constantly lose the plastic spray tubes on cans of lubricant. On a new can, the tube is taped to the side, but after a few uses, the tape gets loose or torn or falls off. My solution was to attach a plastic drinking straw to the side of the can to house the tube. I just cut the straw so it was slightly shorter than the spray tube, hot-glued the straw to the can and then glued the bottom of the straw shut. Works like a charm!

Jim Kucharik



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Comfy under-cabinet work

I recently had to change the garbage disposer under the kitchen sink and knew from previous experience that this was a job that took a while. I'm a fan of the motto "get comfortable while you work," so I took our plastic folding table and propped it up even with the front of the cabinet to save the back of my neck from digging into the bottom edge of the cabinet. I was much less vocal during the job!

Dave Else



TINY TOOL HANG-UP

We have a pedestal sink at our house, so there aren't any drawers to store small grooming tools like tweezers, nail clippers and manicure scissors. That's why I came up with this handy solution for our medicine cabinet. I bought a strip of magnetic tape at the hardware store. It sticks to smooth surfaces, and the magnet holds the small metal items. If you need more gripping power, use two parallel strips!

Jack Breske

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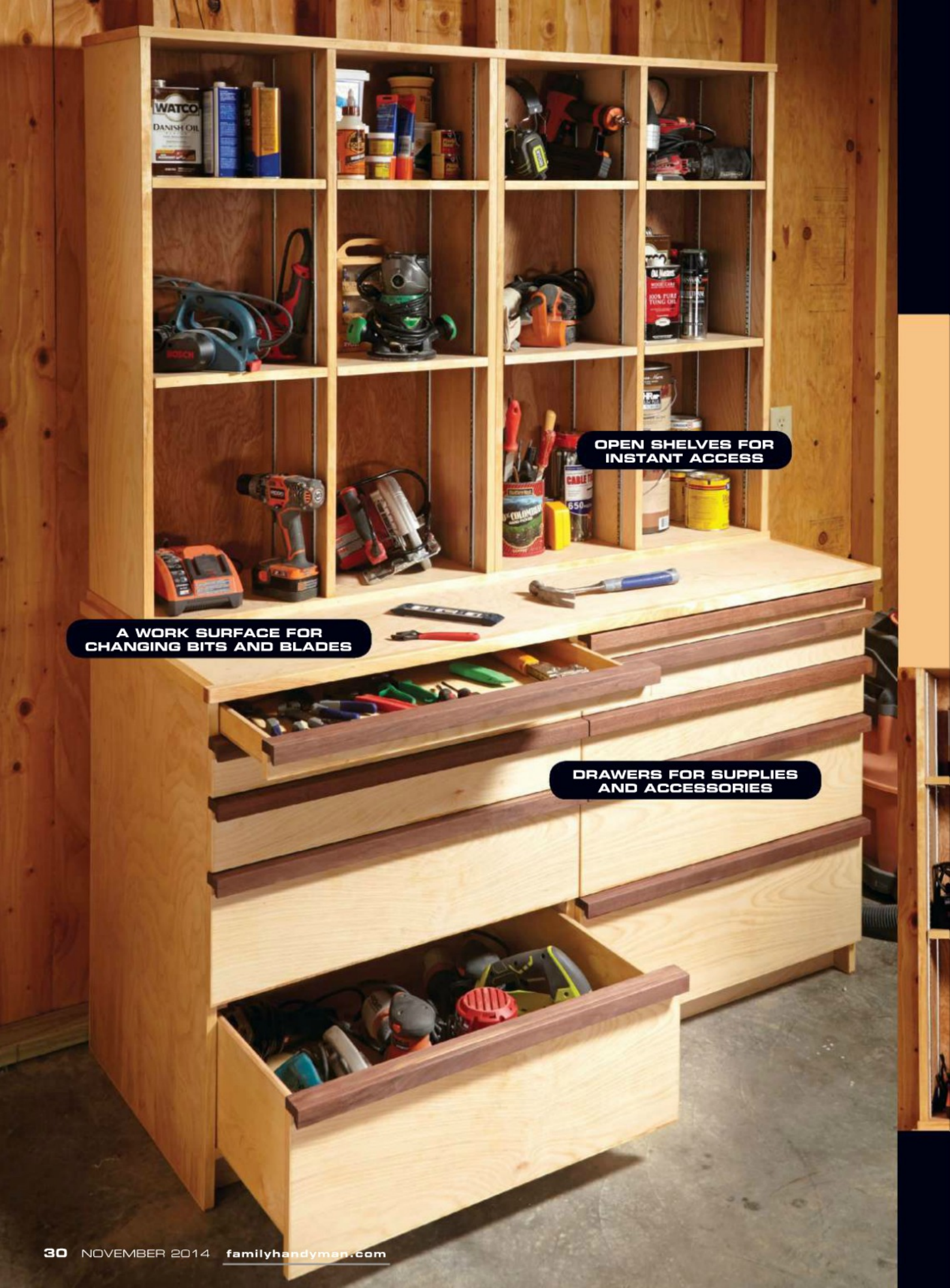


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A cabinet
designed
with
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by David Munkittrick
editors@thefamilyhandyman.com

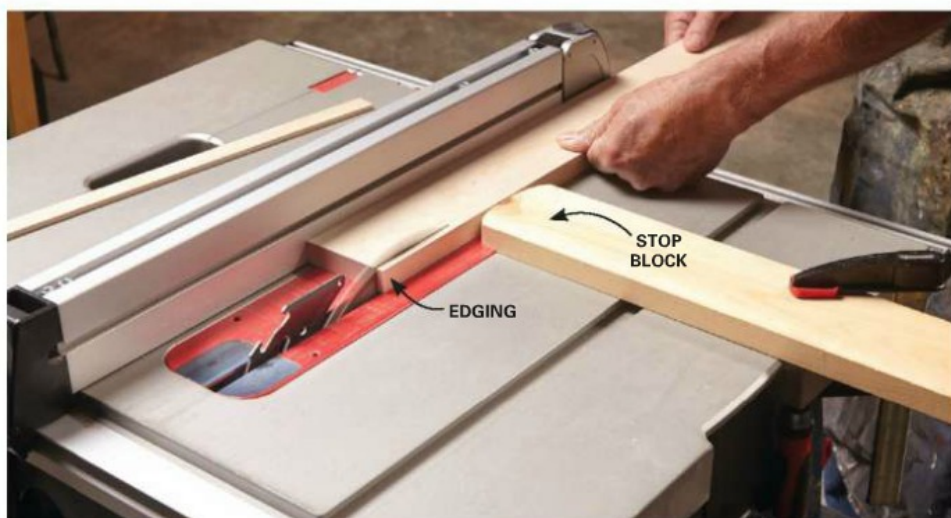
This cabinet provides a home for all your tools. Park often-used power tools on the shelves and occasional-use tools in the deep drawers. The shallower drawers are perfect for hand tools, blades, bits and accessories. And the countertop is just large enough for tool setup or adjustments. I built a double-wide cabinet, so my materials cost was about \$650. A single unit (one drawer cabinet and one shelf unit) would cost about half that. You could also cut costs by using pine lumber rather than the pricey hardwoods I used.



MEET THE BUILDER

Dave Munkittrick is a Field Editor and professional woodworker.





1 CUT THE EDGING SAFELY

Don't simply set the fence $\frac{3}{16}$ in. from the blade to cut the edging strips. That can lead to kickbacks when the thin strips get pinched between the fence and the blade. Instead, clamp a stop block $\frac{3}{16}$ in. from the blade. Set the stock against the stop block, position the fence against the stock and you're ready to rip. You'll need to reset the fence after each cut.



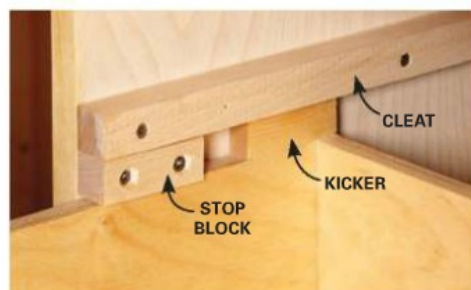
2 TACK ON THE EDGING

Spread a little glue and tack the edging onto the plywood parts with a pinner or brad nailer. Center the edging by "feel," allowing it to overhang slightly on both sides. The edging can also overhang the plywood at one end. But the other end should be flush with the plywood.



3 CLAMP THE EDGING

Clamps alone won't force the flimsy edging tight against the plywood. So use a thicker board or "caul" to distribute the pressure evenly.



Simpler slides for the drawers

Manufactured drawer slides are either expensive or too wimpy for heavy tools—or both. So these drawers are set on simple cleats. Rub a candle on them and the drawers glide very smoothly. To keep the drawers from pulling all the way out, glue kickers to the drawers and screw stop blocks to the cabinets.

Edge the plywood

Most home centers carry "screen molding," which works great for edging plywood. But I couldn't find it in birch, so I cut my own edging from birch boards. Start by ripping approximately 100 ft. of solid wood into $\frac{3}{16}$ -in. strips (LL). I use a simple (and safe!) setup to cut multiple thin strips: Just round the end of a 1x4 slightly and clamp it to the saw table (Photo 1). Position this block slightly in front of the blade, not directly next to it.

Next, cut the plywood parts (B-G, N) but cut them $\frac{1}{4}$ to $\frac{1}{2}$ in. extra long. The extra length allows you to trim the parts to final size after the edging is on.

Cut the edging strips to approximately the same length as the oversized plywood and attach with glue and nails (Photo 2). Make sure the edging overhangs the plywood as you tack it down. Also clamp the edging (Photo 3).

After the glue dries, the protruding edging needs to be flushed up to the plywood. You could use a sander, but you run the risk of sanding through the thin veneer and ruining the part. So I use a trim router retrofitted with an offset base. Set the router on the plywood and lower the bit until it just touches and trim the edging flush to the plywood (Photo 4). All that's left is a little hand sanding and you've got perfect edging.

Trim the cabinet parts to their final length on the table saw. Set the fence a little long and use a miter gauge to cut one end. Then, set the fence to the final length and cut the opposite edge. This

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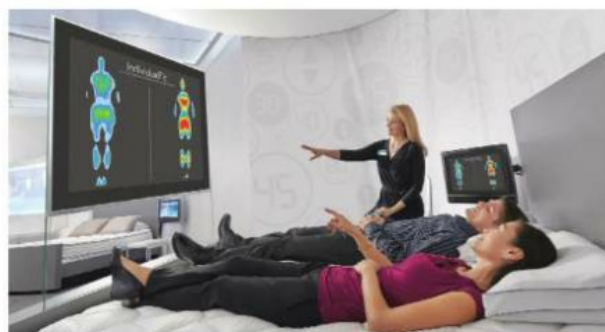
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4 TRIM THE EDGING FLUSH

A straight router bit set at just the right depth will trim off the protruding edging without cutting into the plywood. Remove the plastic base plate from your router and mount the router on a "riser" scrap of MDF, plywood or melamine.



5 MOUNT THE DRAWER CLEATS

Position the drawer-support cleats with scrap wood spacers. Use the same set of spacers on all four cabinet sides to ensure identical spacing.



6 ASSEMBLE THE CABINETS

No need for glue—just use screws. The bottom shelf is attached to the bottom cleat. Use trim-head screws for the top shelf. The small holes are easy to fill and will be virtually invisible below the top edging.

WHAT IT TAKES

TIME: Two weekends

COST: \$350 for a single unit; \$650 as shown

SKILL LEVEL: Intermediate

TOOLS: Table saw, router, drill, brad nailer or 23-gauge pin nailer

leaves your edging perfectly flush and square to the plywood on both ends.

Build the cabinets

Set the cleats (GG, HH) on the lower cabinet sides with screws. I use MDF spacers to ensure correct spacing (**Photo 5**). Align the cleats flush with the front edge of the cabinet sides. Leave a 1/4-in. gap at the back to prevent dust accumulation that would interfere with the drawer closing.

Assemble the lower cabinets, using trim-head screws for the top shelf. The bottom shelf is fastened with regular wood screws through the bottom cleat (**Photo 6**). Cut the backs and attach them with just a few screws for now.

Assemble the upper cabinets with regular screws. They'll be covered with trim later. The adjustable shelves are notched to prevent the shelves from accidentally pulling out when you drag your circular saw off the shelf. I notched the shelves four at a time. Attach a wood sub-fence to your miter gauge. Clamp the shelves together then clamp the set to your sub-fence to gang-cut the notches (**Photo 7**). Shift the stack for each cut until the notch is cut full width. Lay out the notch locations on one shelf according to shelf standard spacing. I put mine 2 in. in from the front and back. Make the notches 1/4 in. deep and 3/4 in. wide.

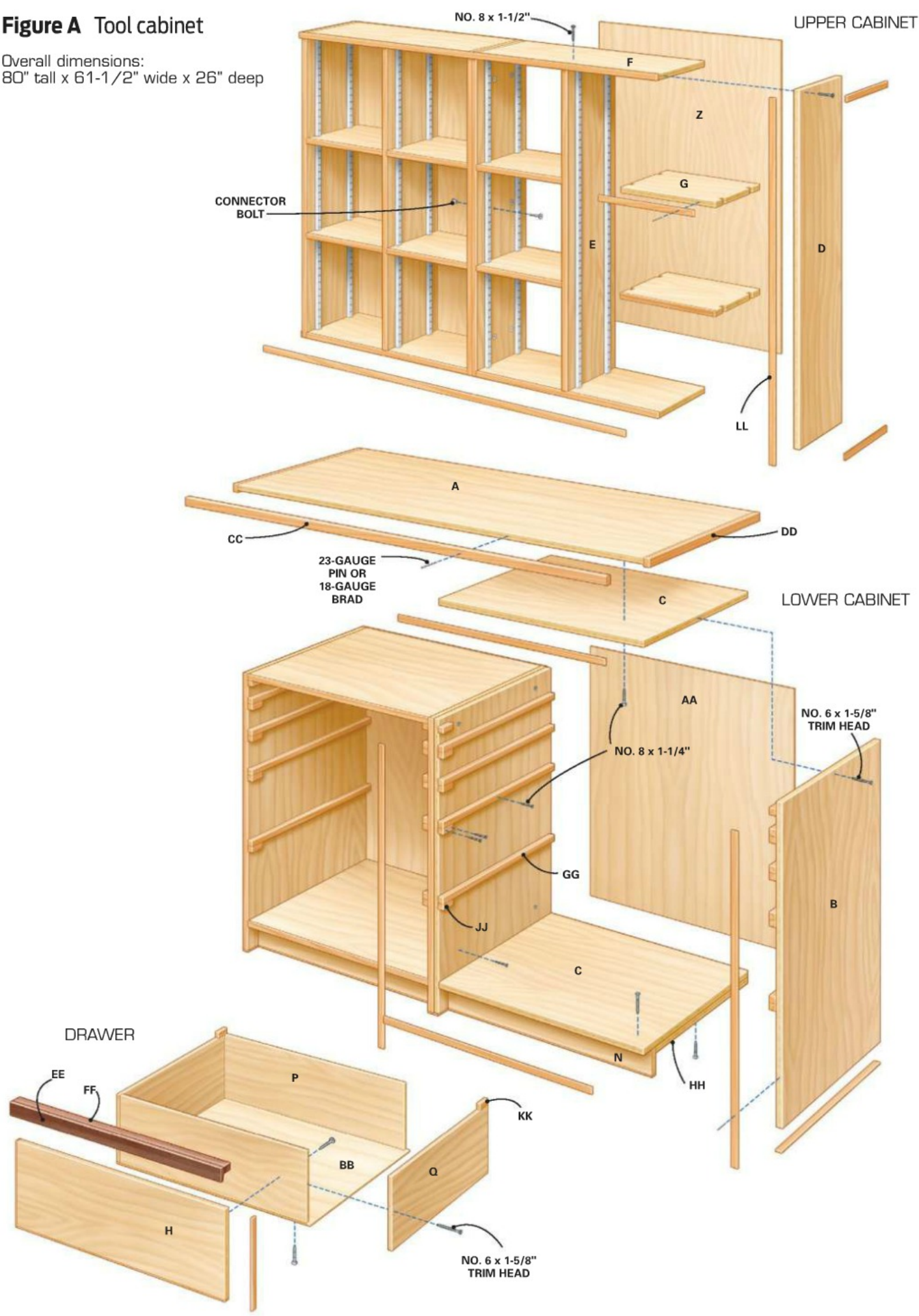
Attach the two base cabinets to each other with screws. Measure and cut the plywood top (A). Apply the edging (CC, DD) to the top with nails and glue, then clamp with cauls. Attach the top and set the upper cabinets. Join the upper cabinets with connector bolts.

Materials List

ITEM	QTY.
4' x 8' x 3/4" birch plywood	4
4' x 8' x 1/2" birch plywood	2
4' x 8' x 1/4" birch plywood	4
1" x 6" x 3/4" birch or maple	60 lin. feet
48" shelf standards	15
Shelf clips	32
Connector bolts	6

Figure A Tool cabinet

Overall dimensions:
80" tall x 61-1/2" wide x 26" deep



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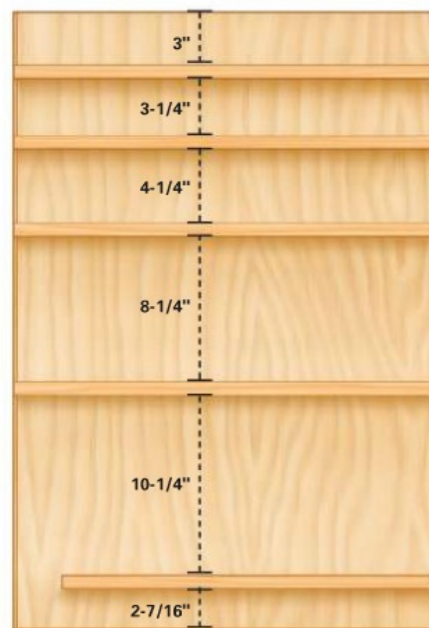
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Figure B
Cleat positions



Build the drawers

Cut the drawer parts (P - Y and BB). To start, build just one drawer box and check for fit. I used No. 6 x 1-5/8-in. trim-head screws to build the drawer boxes. Make sure the drawer is square, then secure the bottom with No. 6 x 1-in. screws. Test the drawer fit in its opening on both cabinets. If the drawer slides smoothly, go ahead and assemble the other drawers. If it's tight, trim the fronts and backs down a bit for a good fit. Countersink all the screw heads into the plywood bottom so they don't interfere with the sliding of the drawer on the cleats.

Remove the backs on the lower cabinets and set the drawers in their openings. Add a couple of short shims on the cabinet sides at the back of the cabinet to center the drawer when it's shut. Glue the shims to the sides with the tapered edge facing forward. The shims ensure the drawer shuts in the same position each time. This will help maintain an even margin on the drawer fronts when the drawers are closed.

Cut your drawer fronts (H - M), leaving them a little oversize. Add edging to the bottom of each drawer front. Flush-trim the edging. Cut the drawer fronts to final length on the table saw. Add the trim to the sides, flush-trim and rip the drawer front to the final width.

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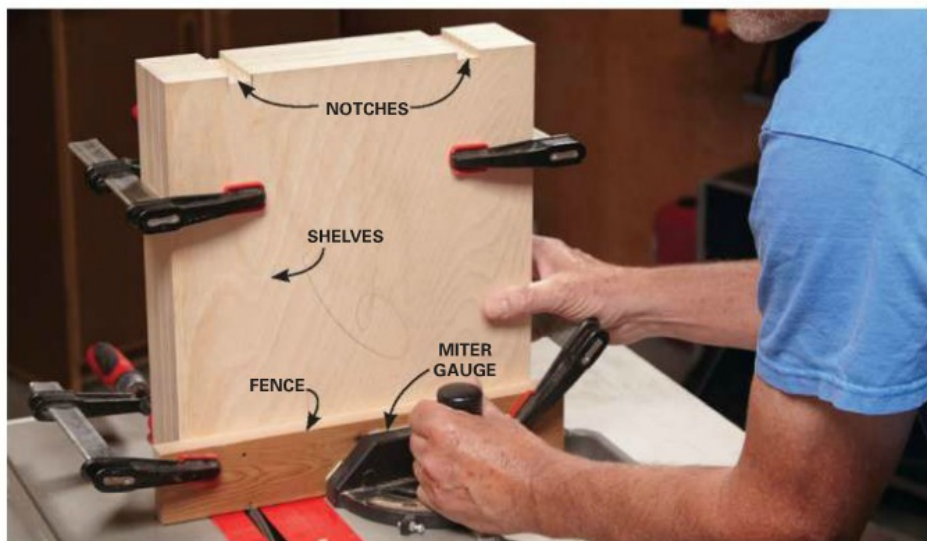
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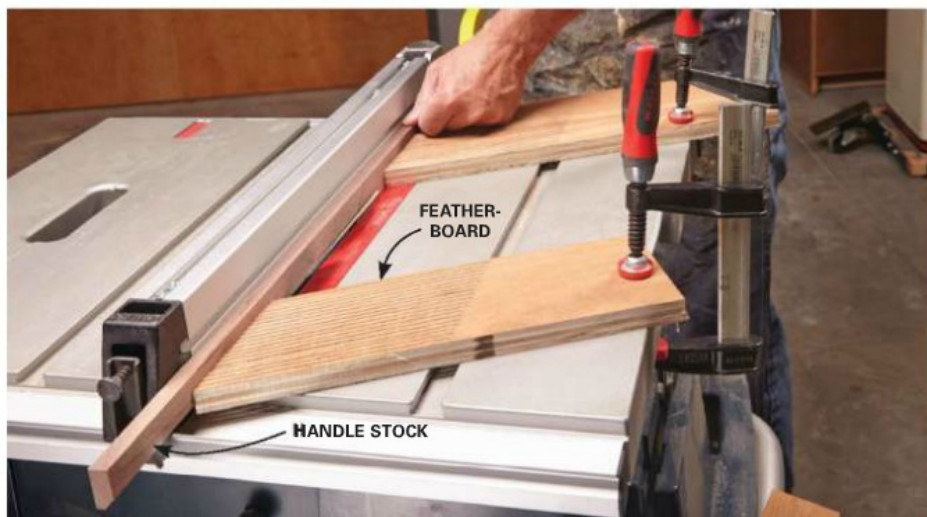
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7 NOTCH THE SHELVES

Notches fit over the shelf supports and prevent the shelves from slipping out of the cabinet. To cut notches, mount a fence on your miter gauge and clamp the shelves to it. Make several passes to complete each notch.



8 BEVEL THE HANDLE STOCK

Set the table saw blade to 45 degrees and mount featherboards on the table to hold the stock tight against the fence. As you reach the end of the cut, drive the stock with a push stick to keep your fingers away from the blade.



9 ATTACH STOP BLOCKS WITH SCREWS

Stop blocks add a measure of safety so the drawer can't be pulled all the way out and crash to the floor.

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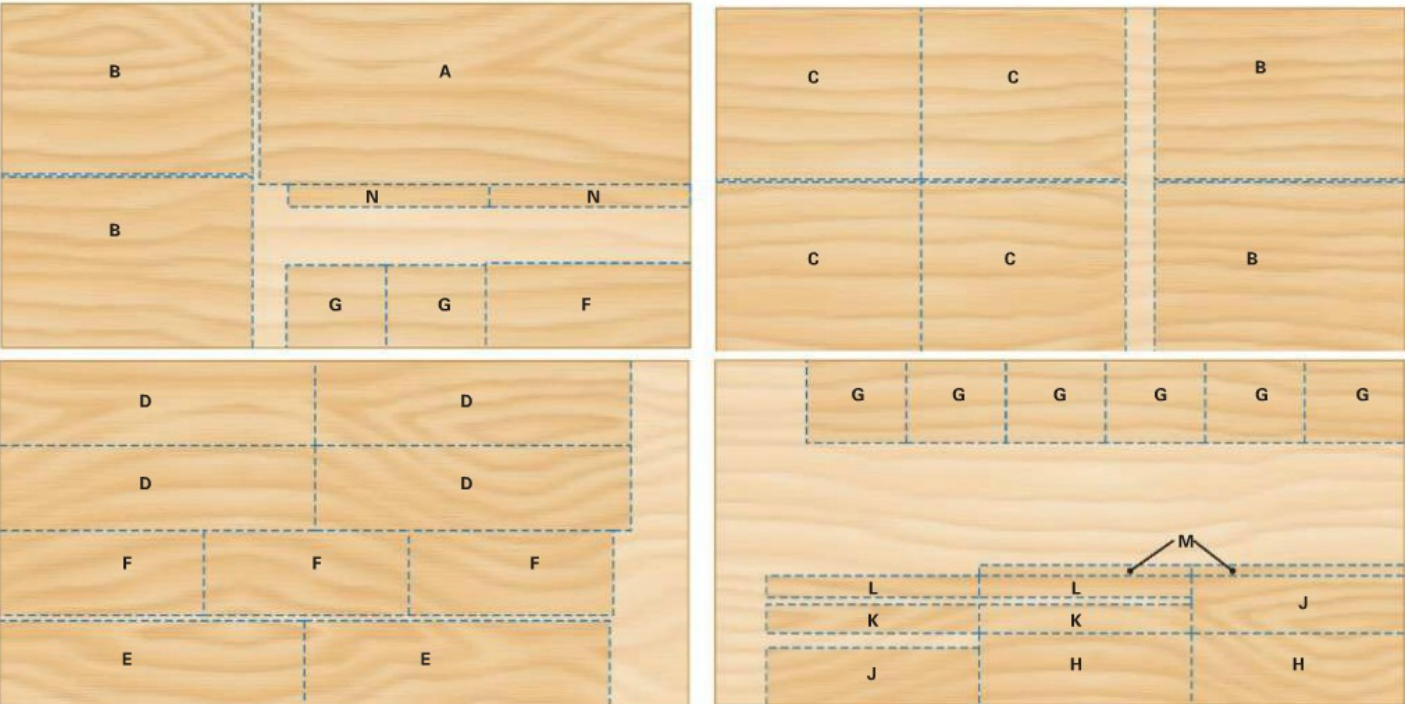
3 PROVEN FORMULAS

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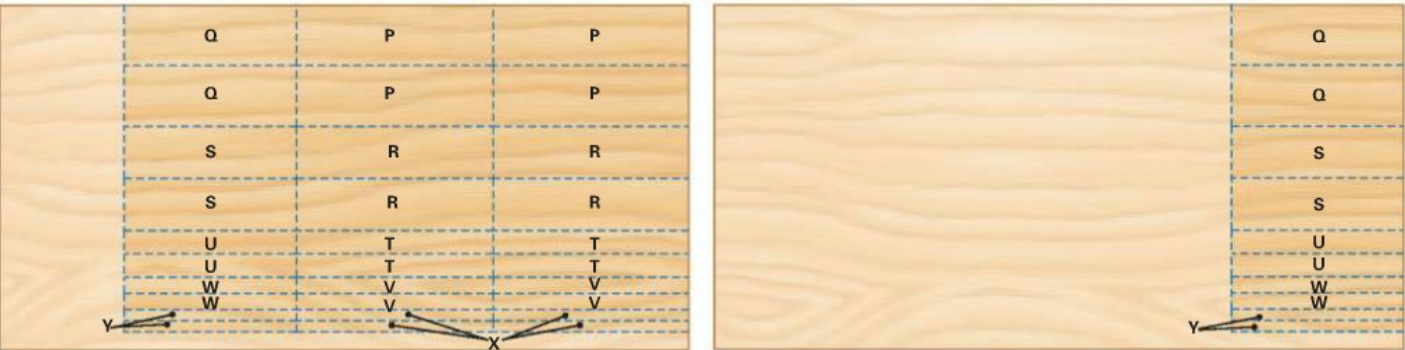
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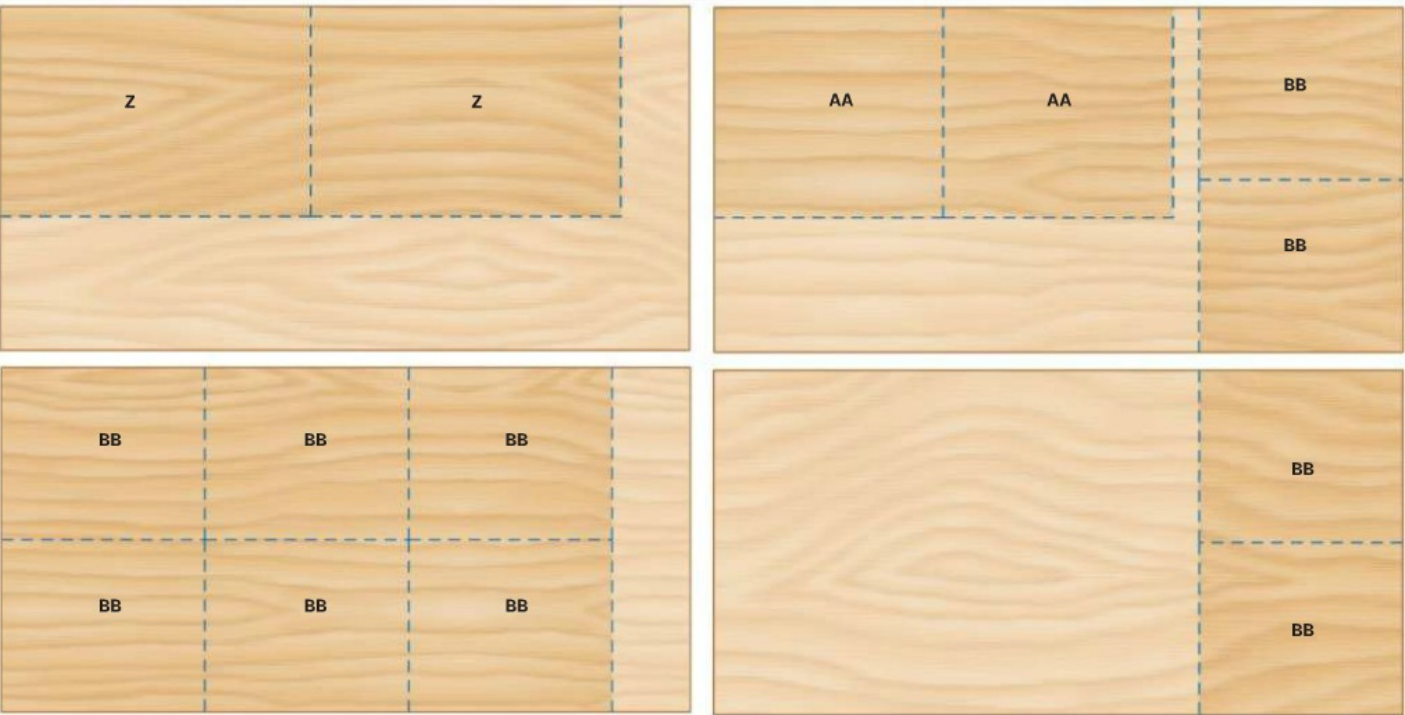
Figure C
Cutting diagrams
3/4" PLYWOOD



1/2" PLYWOOD



1/4" PLYWOOD



Cut the drawer handle parts (EE, FF). Cut a 45-degree bevel on part EE (**Photo 8**). Glue and clamp the parts to form the handle. When the glue has set, sand the handles smooth and attach to the drawer fronts. I used glue and nails, but you could use trim-head screws to attach the handles as well.

With the drawers in their openings, hold the top drawer front in place so the bottom of the drawer front is flush with the bottom of the drawer box and even with the outside edge of the cabinet. Pin the drawer front in place with a brad nailer or a 23-gauge pin nailer. Carefully open the drawer by pushing on it from behind. Clamp the drawer front in place and secure with No. 10 x 1-in. washer head screws. Use a 3/32-in.-thick strip of wood to space the other drawer fronts as you work your way down.

I finished my cabinets with Watco Natural Danish Oil, then added the drawer stops. You can add dividers or line the bottoms with nonslip mats so your hand tools don't rattle around. Best of all, you'll know right where to find your tools—that is, if you remember to put them away. But that's not something I can help you with.

Cutting List

KEY QTY. DIMENSIONS NAME

3/4" PLYWOOD

A	1	25-1/4" x 60"	Top
B	4	23-13/16" x 35"	Lower cabinet sides
C	4	23-13/16" x 28-1/2"	Lower cabinet top and bottom
D	4	11-13/16" x 44"	Upper cabinet sides
E	2	11-13/16" x 42-1/2"	Upper cabinet dividers
F	4	11-13/16" x 28-1/2"	Upper cabinet top and bottom
G	8	11-1/2" x 13-7/8"	Upper cabinet adjustable shelves
H	2	10" x 29-5/8"	Drawer front
J	2	8" x 29-5/8"	Drawer front
K	2	4" x 29-5/8"	Drawer front
L	2	3" x 29-5/8"	Drawer front
M	2	1-1/2" x 29-5/8"	Drawer front
N	2	3-1/8" x 28"	Toe-kick

1/2" PLYWOOD

P	4	8-1/2" x 27-3/8"	Drawer box front and back
Q	4	8-1/2" x 24"	Drawer box side
R	4	7-1/4" x 27-3/8"	Drawer box front and back
S	4	7-1/4" x 24"	Drawer box side
T	4	3-1/4" x 27-3/8"	Drawer box front and back
U	4	3-1/4" x 24"	Drawer box side
V	4	2-1/4" x 27-3/8"	Drawer box front and back
W	4	2-1/4" x 24"	Drawer box side
X	4	1-9/16" x 27-3/8"	Drawer box front and back
Y	4	1-9/16" x 24"	Drawer box side

1/4" PLYWOOD

Z	2	30" x 44"	Upper back
AA	2	30" x 35-1/4"	Lower back
BB	10	24" x 28-3/8"	Drawer bottom

SOLID WOOD

CC	1	3/4" x 1" x 61-1/2"	Top edging
DD	2	3/4" x 1" x 25-1/4"	Top edging
EE	10	1/2" x 1-1/4" x 30"	Drawer pull
FF	10	3/4" x 1-1/4" x 30"	Drawer pull
GG	16	3/4" x 3/4" x 23-3/4"	Drawer cleat
HH	4	3/4" x 3/4" x 21-1/4"	Bottom shelf cleat
JJ	20	3/4" x 3/4" x 2"	Drawer stop
KK	20	1/2" x 1/4" x 3/4" x 2"	Drawer kicker
LL	1	3/4" x 3/16" x 100'	Edging

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62744557

FREE

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FREE

PITTSBURGH
1" x 25 FT.
TAPE MEASURE

ITEM 69080
69030/69031

Item 69080 shown



\$6.99
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NINE LED ALUMINUM
FLASHLIGHT

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62711325

✓ SUPER COUPON!

FREE

PITTSBURGH
6" MAGNETIC
PARTS HOLDER

ITEM 61428/97825

Item 97825 shown



\$6.99
VALUE

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- Car Craft Magazine

NEW
44", 13 DRAWER
INDUSTRIAL QUALITY
ROLLER CABINET

SAVE \$330

Item 68784 shown
LOT NO. 68784
69387
62270
• 2633 lb. Capacity
• Weighs 245 lbs.
• Super High Gloss Finish



\$369.99
REG. PRICE \$699.99



62737824

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✓ SUPER COUPON!

CENTRAL MACHINERY
4" x 36" BELT/
6" DISC SANDER
LOT NO. 93981



\$59.99
SAVE \$40
\$79.99
REG. PRICE \$99.99



62743142

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- Street Trucks Magazine

2.5 HP, 21 GALLON
125 PSI VERTICAL
AIR COMPRESSOR
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61454/61693

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Item 67847 shown
REG. PRICE \$219.99



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✓ SUPER COUPON!

PITTSBURGH
LOT NO. 68048/69227/62116



Item 68048 shown
RAPID PUMP®
3 TON HEAVY DUTY
STEEL FLOOR JACK
• Weighs 74 lbs.
\$74.99 REG. PRICE \$159.99
SAVE \$85



62756683

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✓ SUPER COUPON!

900 PEAK/
800 RUNNING WATTS
2 HP (63 CC)
GAS GENERATOR
LOT NO. 66619
69381/60338



\$99.99
SAVE \$80
\$179.99
REG. PRICE \$279.99



62737112

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✓ SUPER COUPON!

1500 WATT DUAL
TEMPERATURE
HEAT GUN (572°/1112°)
LOT NO. 96289/62340



\$8.99
SAVE 70%
REG. PRICE \$29.99



62766532

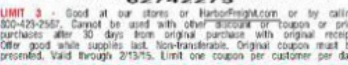
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60" WORKBENCH WITH
FOUR DRAWERS
WINDSOR DESIGN
Item 93454 shown
LOT NO. 93454
69054



\$139.99 REG. PRICE \$249.99
SAVE \$110



62742275

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SUPER COUPON!

4-1/2" ANGLE GRINDER
drillmaster
 LOT NO. 95578
 69645/60625
 Item 60625 shown

SAVE 50%

\$9.99
 REG. PRICE \$19.99

62834121

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SUPER COUPON!

29 PIECE TITANIUM NITRIDE COATED HIGH SPEED STEEL DRILL BIT SET
MARWON
 LOT NO. 5889
 61637/62281
 REG. PRICE \$24.99

SAVE 60%

\$9.99

62802642

NEW

Item 61637 shown

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SUPER COUPON!

1195 LB. CAPACITY 4 FT. x 8 FT. HEAVY DUTY FOLDABLE UTILITY TRAILER
HaulMaster
 LOT NO. 90154/62170
 • DOT certified

SAVE \$130

\$269.99
 REG. PRICE \$399.99

62787337

Item 90154 shown

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SUPER COUPON!

18 GAUGE BRAD NAILER
CENTRAL PNEUMATIC
 LOT NO. 68021/62255

WE CARRY A FULL LINE OF FASTENERS

SAVE 60%

\$13.99
 REG. PRICE \$34.99

62813211

Item 68021 shown

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SUPER COUPON!

"Impressive Accuracy, Amazing Value"
TORQUE WRENCHES
PITTSBURGH
 1/4" DRIVE
 LOT NO. 2696/61277
 3/8" DRIVE
 LOT NO. 807/61276
 1/2" DRIVE
 LOT NO. 239/62431

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\$9.99
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SUPER COUPON!

9" x 72" 2 PIECE STEEL LOADING RAMPS
HaulMaster
 • 1000 lb. Capacity
 LOT NO. 44649
 69591/69646

SAVE 43%

\$44.99
 REG. PRICE \$79.99

62781333

Item 44649 shown

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SUPER COUPON!

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- Off-Road Magazine

12,000 LB. ELECTRIC WINCH WITH REMOTE CONTROL AND AUTOMATIC BRAKE
BADLAND
 LOT NO. 68142/61256/60813/61889
 Item 60813 shown

SAVE \$200

\$299.99
 REG. PRICE \$499.99

62852695

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SUPER COUPON!

2.4" COLOR LCD DIGITAL INSPECTION CAMERA
CENTECH
 LOT NO. 67979/61839/62359
 Requires four AA batteries (included).

SAVE \$80

\$6.99
 REG. PRICE \$13.99

62812949

Item 67979 shown

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SUPER COUPON!

2 HP INDUSTRIAL 5 MICRON DUST COLLECTOR
CENTRAL MACHINERY
 LOT NO. 97869/61790

SAVE \$90

\$159.99
 REG. PRICE \$249.99

62794466

Item 97869 shown

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SUPER COUPON!

MOVER'S DOLLY
HaulMaster
 • 1000 lb. Capacity

SAVE 46%

\$7.99
 REG. PRICE \$14.99

62780149

Item 93888 shown

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SUPER COUPON!

2500 LB. ELECTRIC WINCH WITH WIRELESS REMOTE CONTROL
BADLAND
 LOT NO. 68146
 61258/61297/61840

SAVE \$80

\$49.99
 REG. PRICE \$129.99

62817500

Item 61258 shown

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SUPER COUPON!

17 FT. TYPE 1A MULTI-TASK LADDER
BADLAND
 LOT NO. 67646
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 • 23 Configurations

SAVE \$80

\$119.99
 REG. PRICE \$199.99

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SUPER COUPON!

10" SLIDING COMPOUND MITER SAW
CHICAGO ELECTRIC
 LOT NO. 98199/61307
 61971/61972
 Item 98199 shown

SAVE \$115

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 REG. PRICE \$199.99

62841366

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SUPER COUPON!

72" x 80" MOVER'S BLANKET
HaulMaster
 LOT NO. 66537
 69505/62418
 Item 66537 shown

SAVE 66%

\$5.99
 REG. PRICE \$17.99

62833262

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SUPER COUPON!

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- Street Trucks Magazine

RETRACTABLE AIR HOSE REEL WITH 3/8" x 50 FT. HOSE
CENTRAL PNEUMATIC
 LOT NO. 93897
 69265/62344

SAVE \$65

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62772093

Item 93897 shown

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SUPER COUPON!

8" 5 SPEED BENCH MOUNT DRILL PRESS
CENTRAL MACHINERY
 LOT NO. 60238/62390

SAVE \$45

\$54.99
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62788969

Item 60238 shown

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SUPER COUPON!

"The Price is Irresistible"
- Family Handyman Magazine

MULTIFUNCTION POWER TOOL
CHICAGO ELECTRIC
 6 Functions: Sanding, Remove Grout, Cut Metal, Cut Flooring, Cut Plastic, Plug/Cut, Scrape Concrete, Scrape Flooring

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62832456

Item 68861 shown

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SUPER COUPON!

16" x 30" TWO SHELF STEEL SERVICE CART
US GENERAL
 LOT NO. 5107/60390
 • 220 lb. Capacity

SAVE 53%

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Get creative with tools

We've all done it: When the right tool for the job isn't nearby—or doesn't exist—we do the best we can with what we've got. Here are examples of creativity at its finest.

by Gary Wentz
editors@thefamilyhandyman.com



Drive spikes with a demo hammer

Mauls and sledgehammers are the usual tools for driving huge nails. But a demolition hammer is a lot easier on your arms. To make it work, you need a ground rod driver, which is designed to ram electrical ground rods deep into soil. With a smaller demo hammer like the one shown here, you'll still have to drill holes before you drive. You can rent a demo hammer for about \$50 per day. Some rental centers also have ground rod drivers, or you can buy one online for about \$55. Be careful which one you buy; the driver and the demo hammer must use the same locking system.



UNCORK WITH A SCREW

When you can't find a cork-screw, a screw will do. You may work up a thirst while yanking out the cork—it takes some muscle—but refreshment awaits. Be sure to use a screw with coarse threads.



Lift with a clamp

Whether you're raising plywood to the roof or lugging a sheet of MDF across your shop, a C-clamp gives you something to grab on to.



Cut pipe with a string

It's almost as fast as a saw and fits into tight spots where saws won't. To give the string a starting point, cut a shallow notch with a file or hacksaw blade. Then simply pull the string back and forth to slice through PVC or ABS pipe.



SHAPE STONE WITH A ROUTER

Special routers made just for shaping stone spin big, water-cooled bits. But you don't need that expensive setup for small profiles. Instead, just chuck a diamond-grit bit into your wood router. Works great, even on hard granite. Like other diamond bits, it leaves a pretty rough surface. You can shine up a routed edge with diamond pads. This granite tile edge was rubbed down with a 150-grit pad, followed by 400 and 800 grits. It's easy, but the pads cost about \$20 each online. Diamond bits cost \$20 and up at toolcity.com.



DIAMOND ROUTER BIT



Shine shoes with a drill

Thirty seconds with a drill-powered buffer does wonders for dull shoes. For a glossier shine, apply polish before buffing. You can get a drill buffer for about \$20 online. Search for "drill shine shoes."

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WILD MUSTANGS, WYOMING

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CLEAN WITH A BLOWER

Don't restrict your leaf blower to yard duty. It's a superb cleaning tool—10 times faster than a vacuum or broom. Blast-clean your car, garage, shed, boat.... It's also handy after you wash your car—just blow off water droplets for a spot-free finish.



Level with a garden hose

When you need to level over long distances, around obstacles, even around corners, nothing beats a water level. You can buy one online for about \$15. Or, for a few bucks less, you can rig up your own with parts found at any home center. The version shown here is made from male and female barbed hose fittings and 5/8-in. clear tubing.



BRUSH WITH A DRILL

Got a big scrubbing job on your list? Chuck a brush into your drill and save the elbow grease. You'll find drill-ready brushes for all kinds of scrubbing at drillbrush.com for \$10 to \$30 each.



WORKS BETTER

ON TOUGH GREASE & GRIME

Mean Green Cleaner & Degreaser - **PROVEN TO CLEAN BETTER** than other brands. Indoors and out, it is the ultimate **TOUGHNESS YOU CAN TRUST.**

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& Select Grocery Stores

MeanGreenDegreaser.com

Awesome Product!

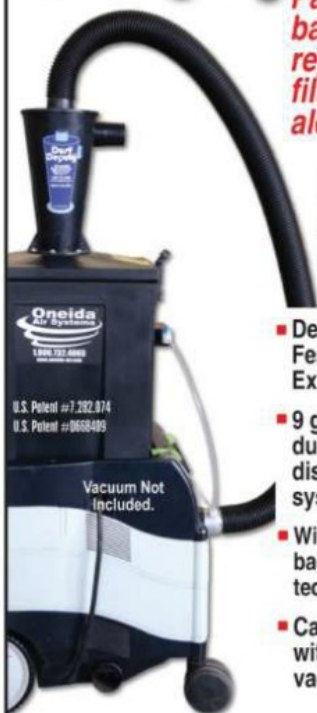
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Captures 99% of the waste
BEFORE it reaches your
shop vacuum!



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A classic way to shine up a dull finish—whether it's been sanded or is just worn—is to "rub it out" with very fine steel wool. But here's a faster way: Set your random orbit sander on an abrasive pad. This tabletop got three coats of polyurethane, followed by wet sanding with 600-grit sandpaper. An 800-grit pad then brought back a satin luster. Very-fine abrasive pads are available online and at some auto parts stores.



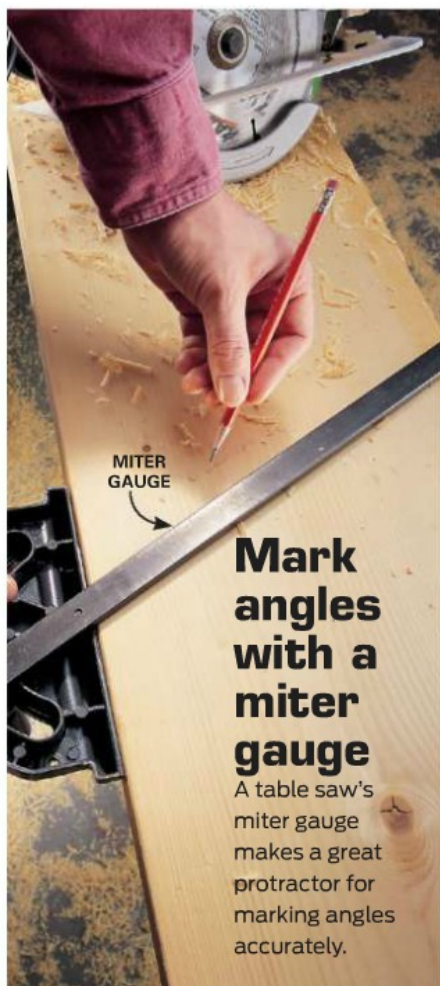
Clear clogs with a pick-up tool

Before you remove the drain trap to get at a stubborn clog, try to yank it out with a flexible pick-up tool. Works great on hair clogs.



Drive hooks with a wrench

Screwing in a big storage hook requires strong hands or pliers (which wreck the plastic coating). Or you can use a wrench. Start by screwing in the hook by hand, then slip the wrench onto the hook. The wrench will catch the front of the hook and drive it home.



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Mark angles with a miter gauge

A table saw's miter gauge makes a great protractor for marking angles accurately.

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Lube with a pencil

It's not the perfect lubricant for most jobs, but the graphite from your pencil is slippery stuff, and it's always right there in your tool belt. Just rub the part to make it slick.



Flatten a board with a router

This is a slow, crude method. But if you don't have a planer—or the board is too wide for a planer—it may be the only way. First, replace the router's base plate with an over-size plate made from 1/4-in.-thick acrylic (available at home centers). Attach stretchers to the plate, lock a straight bit into the router and set up rails to support the stretchers. To lock the board into place, drive a couple screws deep enough so that the router bit can't hit them. Make shallow cuts, lowering the bit again and again until the board is flat. Then flip the board over and flatten the other side.



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PLAN WITH A GARDEN HOSE

When you're designing something curvy—a pond, retaining wall or flower bed—lay it out with a hose or rope. When the design is right, mark the shape with spray paint.



Inject glue with a compressor

Ever tried to work glue into a crack with a toothpick? It kinda works, but it's slow and sloppy. A blast of air, on the other hand, drives the glue in deep, evenly and fast. Don't have an air compressor? Hold your shop vacuum nozzle under the crack so it can suck glue deep into the crack.

Continued on p. 55

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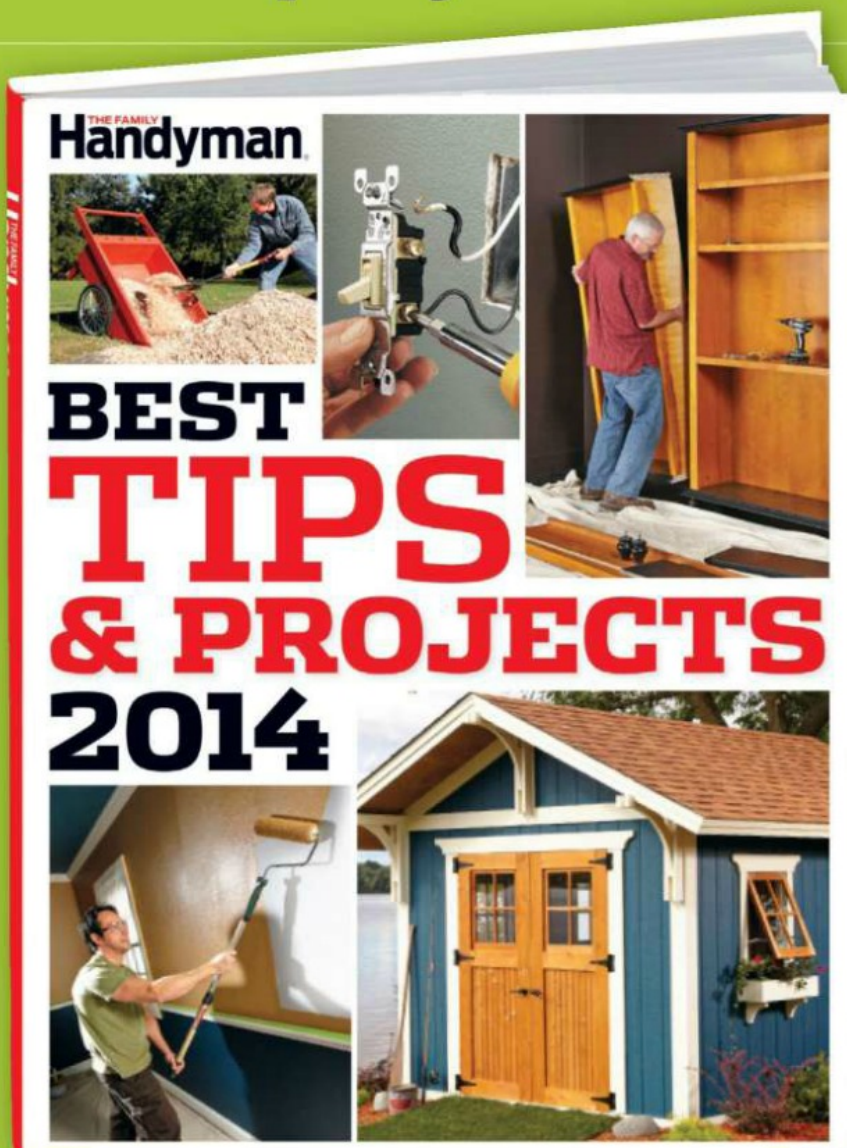
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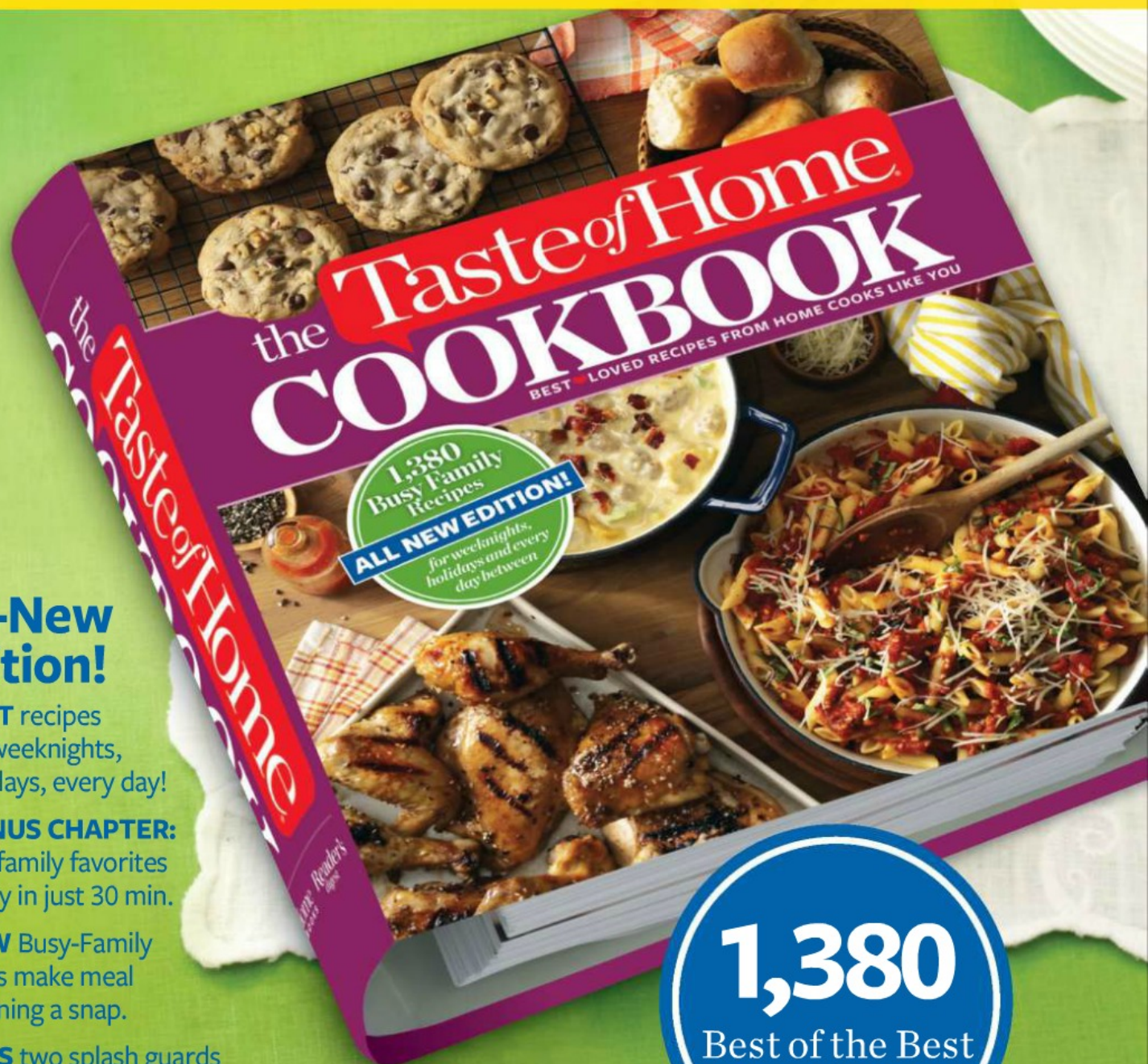


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Cut with a drill

If you need to shorten a bolt, let your drill do the hard work. Spin two nuts onto the bolt, tightening them against each other. Then chuck the bolt into the drill and hold a hacksaw blade against the spinning bolt. The nuts help to steady the blade and clean off burrs when you unscrew them.

Move a trailer with a dolly

If you have a bad back, forget the lift-and-lug method. Instead, drill a hole in a dolly and add a 3-in. bolt and a stack of washers to create a knob. Slip that knob under the hitch socket, lift, and push or pull.



Stain with a compressor

A shot of air from your compressor drives stain deep into the grooves surrounding panels. That way, if the panel shifts or shrinks, you won't end up with an unstained line along the edge of the panel. At the same time, it blasts excess stain out, so it can't dribble out later and leave dark streaks. This works great on inside corners, on carvings or on any spot where it's tough to wipe off excess stain.

MAKE IT MOBILE

Wheels
are a
builder's
best friend

by Tom Caspar

editors@thefamilyhandyman.com

When I recently moved to a new garage shop, I put everything I could on wheels. My router table is on wheels, my miter saw is on wheels—heck, even my bench is mobile. This way, I can roll out machines when I'm building and roll them back to park the car.

Wheels also make a lot of sense in a basement or shed shop, particularly when you're short on space. You can park seldom-used machines in a corner and pull them out when you need them. You can easily rearrange your shop for cutting up sheets of plywood or assembling kitchen cabinets.

Simply put, going mobile gives you more elbow room. Here are seven tips on how to do it.

WHEELBARROW WISDOM



Combine a wheel and a lever and what do you get? A wheelbarrow—one of the most underrated inventions of all time. It's easy to move, but when you come to a stop and lower the handles, it doesn't budge.

Here's how to apply wheelbarrow logic to shop tools. Mount a pair of large wheels on one side of the unit you want to move, then add removable handles.

Better yet, mount the wheels on the side of the unit and about 1/16 in. above the floor. When you tilt the unit by lifting up the handles, the wheels will touch the floor and you'll be ready to roll. When you lower the handles, the unit will stay put, sitting solidly on all four corners.

The cart shown above has two 4-in. fixed wheels fastened to one side. I made the handles from PVC pipe and hardwood. I cut the corners off the wood so they slipped inside the pipe. I nested the PVC to boards with a V-groove cut in them to mount the pipe securely to the cart.

ROLLING SHELVES



There's always something in a workshop—like a stack of plywood—that you don't need access to very often but you can't easily store. Here's a clever solution: Park a set of rolling shelves in front of it.

When you need to get at the item, just roll the shelves out of the way. In my crowded shop, this also opens up the space I may need for sawing an extra-long board or setting up a pair of sawhorses. I like my shop's arrangement to be as flexible as possible.

Some types of light-weight shelving come with optional casters; they just screw into the ends of the uprights. For heavier-duty shelving, like that shown here, the most practical way to add casters is to mount them to a 3/4-in. plywood platform using carriage bolts. The platform also serves as the bottom shelf.

SLIDE IT!

If your shop floor is flat and smooth, you may not need wheels at all to make some items mobile. Just add slippery plastic pads to the bottom of your cabinet or machine's base and slide it from place to place.

You can easily make these pads by sawing a polypropylene cutting board into 3-in. squares. Bevel the edges and round the corners of the pads with a file or coarse sandpaper. Fasten them with screws that are deeply countersunk. You won't want the screw's heads to drag on the floor.



PRY-BAR PRACTICALITY



For workbenches or tools mounted on bases, the holy grail of mobility is a system that allows the unit to sit solidly on the ground. I've seen lots of clever ways to raise a heavy cabinet above the floor in order to get it rolling, but here's the simplest: Use a pry bar.

When the wheels are off the ground—1/8 in. is enough—just insert a block under each corner. Lower the corner until the unit sits on the block. You may need to insert another block under the pry bar to get leverage, but that's easy to do.

CHEAP CASTERS LEAD TO REGRETS

Over many years, if there's one thing I've learned about casters, it's that small ones that cost only a few bucks don't make sense in a shop. They're fine for pushing light items around a house, but they just don't cut it for moving machinery, benches or carts stacked with wood.

My advice: Bite the bullet and buy the expensive, high-quality ones, even though they may cost two or three times more. They're way better. These casters have soft wheels that roll with less friction, so pushing is easier on your back. Cheap casters usually have hard wheels that wobble or vibrate, tossing your stuff

overboard. When you lock a cheap caster, the wheel won't rotate but the caster can still spin around. When you lock the best type of expensive caster, all rotation is stopped.

Dollar for dollar, upgrading my casters was one of the best investments I've ever made in my shop.

THE IDEAL WHEEL

Swiveling casters often come with built-in locks. No surprise there, but did you know that there are two different kinds of locks?

A standard lock prevents the wheel from turning but doesn't stop the caster from rotating around its plate or stem. A cart or machine with these casters won't roll away when locked, but it will jiggle when pushed. If you put them on a cabinet supporting a tool, a workbench or anything else that has to lock down solid, you'll be sorely disappointed.

A double lock, shown at right, totally freezes the caster. The wheel won't turn and the caster won't rotate. I put a set of 3-in. double-lock casters on a heavy cabinetmaker's bench, and I'm very pleased with the results. When I'm working, the bench hardly wiggles at all. Locked, it's stable; unlocked, it's mobile. That's the best of both worlds.



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GO BIG



Small casters may be inexpensive, but they take a heavy toll on your back—and on your patience.

Equipped with too-small wheels, a cart or machine is hard to push: You may have to lunge at it just to get going. Once you're up to speed, every little crack or crevice in your floor will stop you dead in your tracks. If you bump up against a screw or nail that rolled off your bench or one of the small chunks of wood that undoubtedly litter your shop's floor, you have to remove the offender or change direction. Talk about annoying!

For moving heavy loads or maneuvering over an uneven floor, go big. The problems mentioned above won't go away, but they will be minimized. Use casters that are at least 2-1/2 in. in diameter.

Casters up to 4 in. in diameter are best for really heavy stuff. The larger the caster, the less muscle power you'll need to get rolling and keep rolling.



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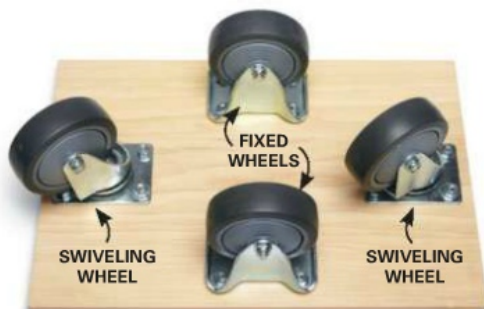
3 WAYS TO ARRANGE CASTERS



Option A is best for maneuvering into a tight spot.



Option B is best for steering across a floor.



Option C is a good compromise between A and B.

When most folks put a cart or cabinet on wheels, they buy four swiveling casters and put one at each corner (Option A). Two other configurations are also worth considering.

You could substitute two fixed casters for two that swivel (Option B). Alternatively, you could move these casters to the center of each side of your unit (Option C).

What's with all these options? Well, the choice comes down to whether you want your unit to be easy to maneuver into a tight space or easy to push in a straight line—or somewhere in between.

Option A, with swiveling wheels at all four corners, is best for parking your unit in a tight spot. If your shop is small and crowded, this is the way to go.

Option B, with fixed wheels at one end and swiveling at the other, is arranged just like your car or a grocery cart. A unit with this configuration tracks nicely and is easy to steer; it's best for shops with plenty of room.

Option C, with wheels placed on centers rather than in the corners, is a good compromise between A and B. Carts used in railway stations and factories years ago were usually built this way. They could spin on a dime, but they also tracked well. This configuration does have a couple of disadvantages, however. First, the corners are tippy, so you must evenly distribute a load. Second, this arrangement doesn't work on a cart with four legs. It's really meant for a cart with a platform base.

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ESSENTIAL BAND SAW TIPS

by Tim Johnson

editors@thefamilyhandyman.com

A man with glasses and a blue polo shirt is operating a green and white band saw in a workshop. He is carefully guiding a piece of light-colored wood through the blade, which is cutting a curved shape. The workshop background shows shelves with various tools and materials.

A band saw is a simple woodworking tool. You can figure out how to cut simple curves pretty easily. But having used band saws for decades, I've picked up lots of tricks that will give you better results, whether you're cutting curves or turning logs into lumber. Here are the most important lessons I've learned.



Cut on the outside edge of the line

Band saw cuts usually leave saw marks, so it's good practice to allow extra material for smoothing the edge. Cutting on the outside edge of the line minimizes the amount of material you have to remove. However, accurately following the edge of a line—especially a curved line—takes practice. So until you've mastered this skill, it's best to start far enough away to leave a bit of wood showing between the line and the saw kerf. Remember: An oscillating spindle sander (or a sanding drum chucked in your drill press) is a band saw's best friend.



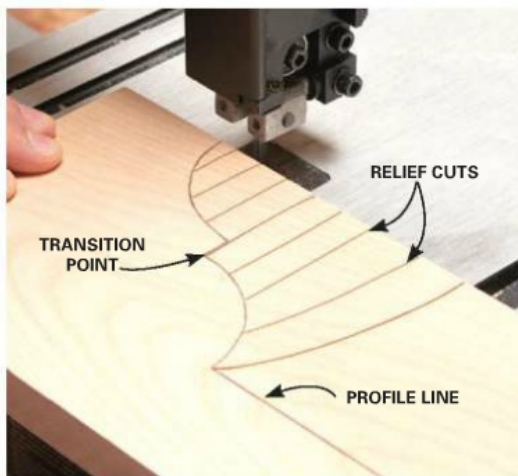
Cut nonferrous metals

A blade with lots of fine teeth works great for cutting thin-walled brass, aluminum and copper. Make sure the teeth are hardened—a blade without hardened teeth will dull quickly.



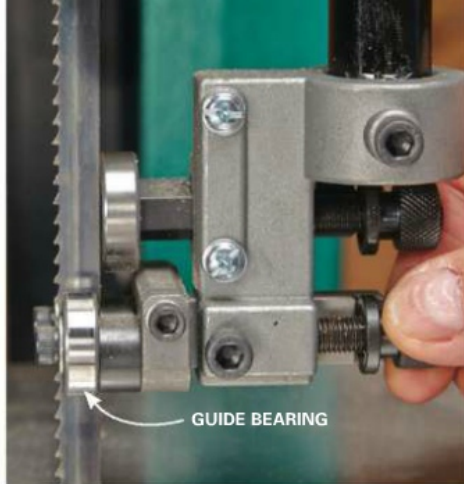
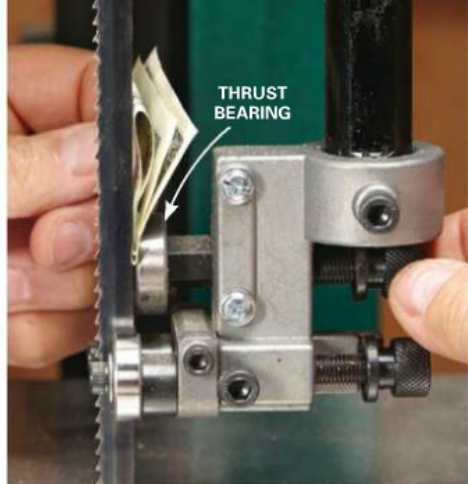
INSTANT ZERO CLEARANCE

Here's an easy way to eliminate those annoying delays caused by offcuts getting jammed next to the blade in the saw's throat plate. Just cut a kerf in a piece of thin cardboard from a cereal box and tape it to the table.



Make relief cuts

Cutting a contoured profile is easier if you first cut in to the line along the curves and at the transition points. Then, when you saw the profile, the waste falls away whenever you reach one of these relief cuts. This frees the blade to continue and effectively reduces each contour to a series of short, manageable cuts.



\$1 blade guide setup

Use a dollar bill (or a piece of paper) as a spacer to properly set up a saw equipped with metal blade guides and thrust bearings. These metal components must be positioned ever so slightly away from the blade to minimize friction and keep it from overheating. Remove the blade guard to make these adjustments easier.

Start by setting the blade guide assembly about 1/4 in. above the height of the stock you're cutting. Then fold the bill into four thicknesses and use it to position the thrust bearing behind the blade (**above left**). Next, bring the guide assembly forward until the fronts of the guides (which are round bearings on this saw) rest just behind the bottoms of the blade's gullets (**above center**). Finally, use the unfolded bill to set the guides on both sides of the blade (**above right**). Then repeat the process to position the lower guides and thrust bearing.



Immediately replace a dull blade

This is a must-do. A slower feed rate, burning and increased difficulty in following a line are all signs of a dull blade. Persisting won't do any good—installing a sharp blade is the only solution.

TIP: Check the dull blade before you toss it. If it's dirty or covered with pitch from cutting resinous woods such as pine, a good cleaning may be all it needs. Just coil it and soak it in the same blade cleaner used for table saw blades.

RELEASE THE TENSION

Extend the life of your blades by releasing the tension whenever your saw will sit idle for three days or longer. Some saws have a quick-release mechanism that makes this a snap. Otherwise, rotating the tensioning knob two or three complete turns will do the trick.

Keeping the tension on can cause metal fatigue that will make the blade break prematurely. It can also cause tracking problems by flattening the crowns on the saw's rubber tires.

UPGRADE THE BLADE

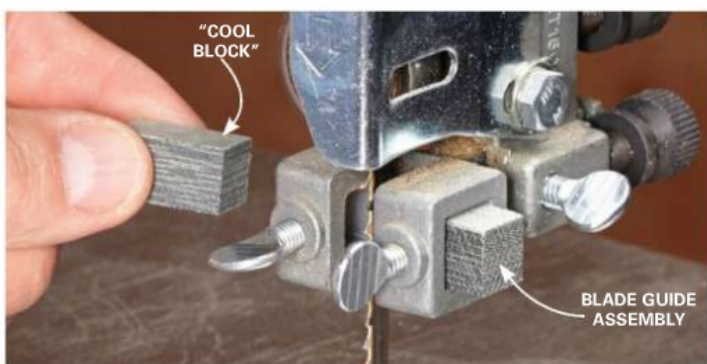
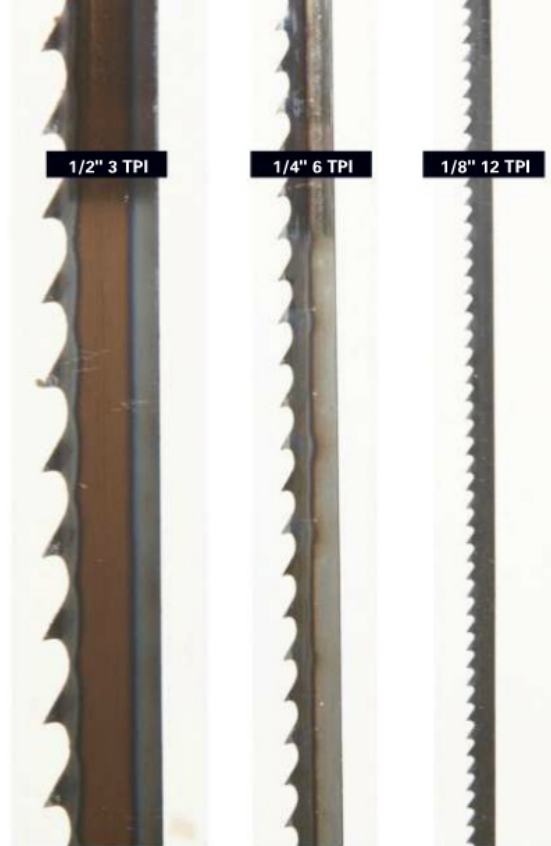
My first recommendation is to replace the blade that came with your band saw. This simple upgrade is guaranteed to improve your saw's performance. I prefer blades made with hardened teeth that are cut rather than pressed (Timber Wolf is one brand). At \$20 to \$30 apiece, they cost more than twice as much as economy blades. But I still consider them a bargain.

Aside from quality, there are two features to consider in a blade:

- **Width:** Wider blades are best for thicker wood and straight cuts because they "wander" less than narrow blades. But narrow blades are essential for curves. The narrower the blade, the tighter it can turn. The narrowest blades can cut curves with a radius as small as 3/16 in. (That's the diameter of a ballpoint pen tip!)
- **Teeth per inch:** Lower-TPI blades are better for cutting thicker stock. A higher-TPI blade will cut slower but leave a smoother surface.

Although the widest and narrowest blades are good to have, you'll get the most bang for your buck with midsize blades. Ranging from 3/8 in. to 1/4 in. wide, midsize blades can make both straight and curved cuts. (A 3/8-in. blade has more rigidity for straight cuts; a 1/4-in. blade cuts a smaller radius, 5/8 in. vs. 1-1/2 in.) Installing one of these workhorses will minimize blade changing, because it'll make most of the cuts you typically make. I make a lot of curved cuts, so a 1/4-in. 6-TPI (teeth per inch) blade is the workhorse that stays in my saw.

If you want to slice thick boards into thinner boards, consider a "resaw" blade designed just for that job. A resaw blade's added width provides rigidity to keep it from twisting. To cut without overheating, a resaw blade also has widely spaced teeth that cut aggressively and deep gullets that efficiently remove sawdust.



Switch to Cool Blocks

The square steel guide blocks found on many older saws are bad news: They can cause a blade to overheat, and they'll quickly dull a blade if they come into contact with its teeth.

Replace these blade killers with Olson Cool Blocks (\$15 online). Cool Blocks are self-lubricating, so they won't cause overheating even if they contact the blade, and they're soft (compared with steel), so they won't damage its teeth. These two qualities also ease setup, especially with narrow blades (1/4 in. and smaller), because you can press Cool Blocks against the blade and its teeth. Unlike steel blocks, they don't have to be exactly positioned.

IT'S ALL IN THE WRIST

This is the easiest way to coil a blade for storage. All you have to do is rotate your wrist 360 degrees.



1 Using either hand, hold the blade with your palm facing out and the teeth facing away from you. Wear gloves—those teeth are sharp! Stabilize the blade with one foot. Place a block of wood under the blade to protect the teeth from a hard floor.



2 Press down with your hand to compress the blade into an oval.



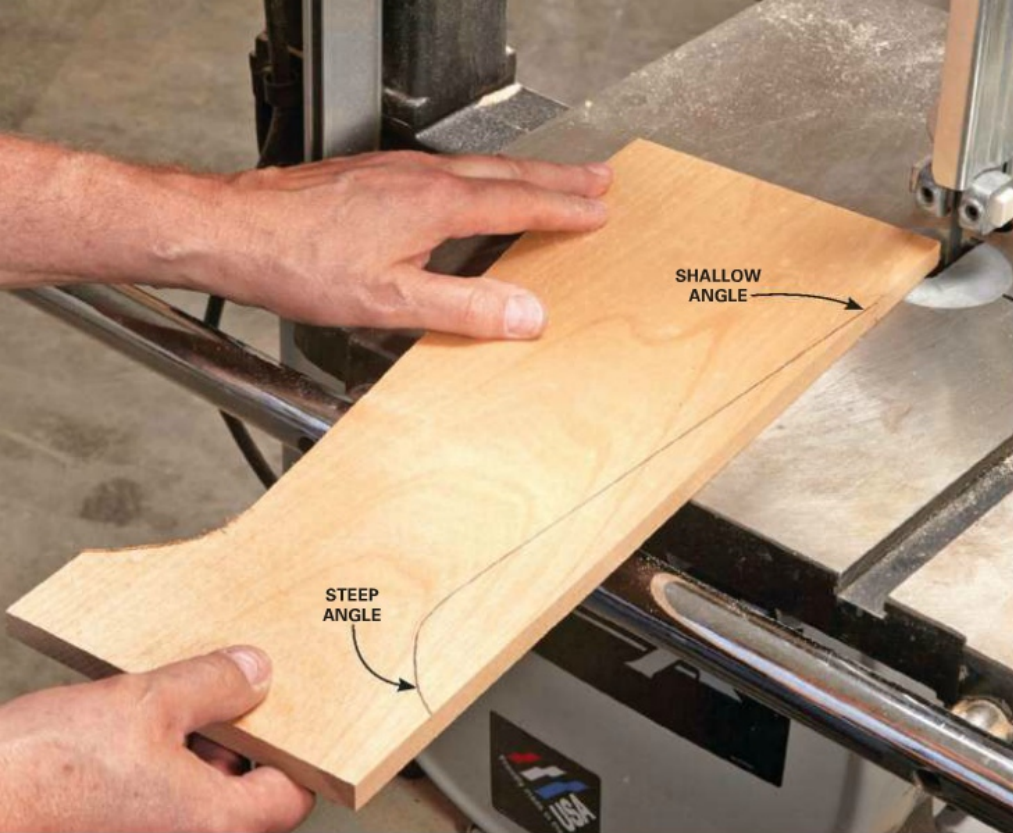
3 Slowly rotate your wrist so your palm faces in and the blade begins to coil. Grip the blade firmly during this step so it doesn't slip in your hand.



4 Continue rotating your wrist and coiling the blade until your palm faces out.



5 Use your free hand to capture the coiled blade.



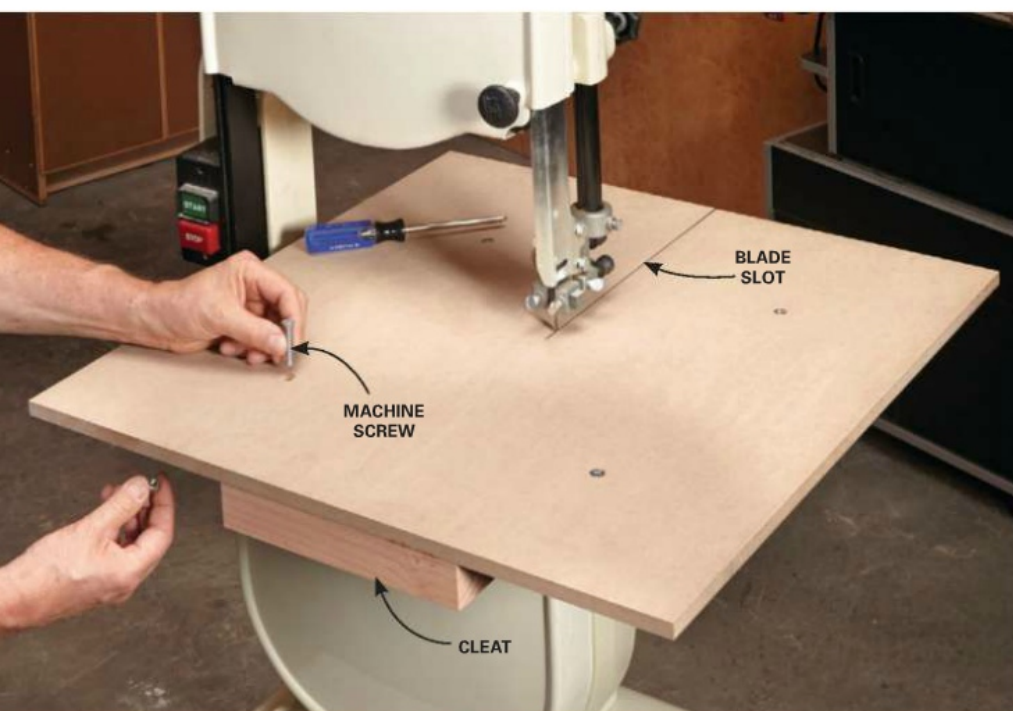
START AT THE SHALLOW ANGLE

Always start a contoured cut at its shallowest angle. Cutting in the opposite direction—so the cut ends with the shallow angle—can result in a ragged edge, because the blade can veer off the line at the last second and pop out. If the angles are shallow at both ends of a contour, start at each end and cut to the middle.



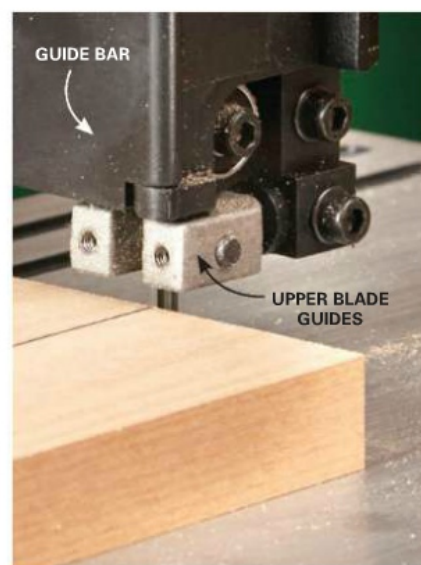
Round the blade to improve performance

Cut tighter curves, reduce blade vibration and increase blade life by truing the blade with a saw blade finishing stone (\$15; olsonssaw.net is one source). Start by removing the back corners, then round the back. The process takes about five minutes, and the benefits last for a blade's lifetime. You can use the stone on scroll saw blades too.



INSTALL A BIGGER TABLE

The 24-in.-square table shown here provides more than twice the surface area of this 14-in. band saw's original table. Use your table saw to cut the blade slot, and attach a cleat to correctly position your new table against the front of the saw's table. Then locate and drill holes through both tables for machine screws. Countersink the holes in the new table so the screw heads rest slightly below the surface. Then slide the new table into position, anchor it to the original table and you're ready to cut.



Set the guides close to the wood

Every band saw manual tells you to set the guides close to the wood, and here are two good reasons why. It positions the upper blade guides as close as possible to the lower blade guides (which are mounted under the saw's table), so it provides the best cutting results. And it exposes less of the blade, which is safer for you.

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Step 1



A unique tool that creates the proper sub floor slope needed underneath the pan liner to manipulate the water towards the weep holes that are an integral part of shower floor drains.

+

Step 2



A stay-in plastic form designed to eliminate the possibility of any nails puncturing the liner on the top or inside walls of shower curbs.

+

Step 3



A stay-in place screeding guide system that guarantees a properly pitched shower floor every time regardless of size and shape.

=



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Tools used:
1) Pre-Pitch™
2) Kirb-Perfect®
3) Quick-Pitch®
4) Universal Center Ring

Handi-Kirb with Roll on and Sheet Membranes



Tools used:
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1) Pre-Pitch™
2) Handi-Kirb
3) Quick-Pitch®
Low Profile curb
1) Pre-Pitch™
2) Handi-Kirb

Sheet Membranes



Tools used:
1) Quick-Pitch®
2) Quick-Clips
3) Kirb-Perfect®

String-A-Level™



Simultaneously attach and level a continuous stringer on which to stack heavy or large format tile vertically.



68 NOVEMBER 2014 familyhandyman.com

WHAT'S THE DIFF?

Band saws come in many sizes and prices, but they're all basically the same tool: A band of steel with teeth rotates on two wheels and passes through a table. Guides and bearings located above and below the blade hold it in position as it cuts. You simply place a board on the table and push it through the rotating blade.

Entry-level benchtop saws offer portability over cutting capacity (maximum cutting width and height). Their lightweight construction is likely to allow some vibration, adjustments are finicky and blade choices are limited. Cutting thick hardwood can push them beyond their limits, but that's OK: These 9- and 10-in. saws are designed for light-duty use—they'll cut like the dickens when you don't ask them to do too much. And at about \$150, you can't beat the price.

Floor-model 14-in. band saws typically feature heavy construction with vibration-dampening cast-iron components, induction motors, substantial blade guides, tensioning and tracking systems and a full range of blade choices. They have larger cutting capacities than benchtop saws, and larger tables. Prices start at about \$600. Is the combination of capability and stability these saws offer worth the cost? If you're an avid woodworker, I say yes, especially if you want to try your hand at resawing.

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Drug Companies Fear the Release of "Jacked Up" Pill

Big Pharma executives are nervous.

Analysts expect new natural "Jacked Up" pill could put a huge crimp in sales to men over 50. Pill said to restore strength; energy, metabolism, sex-drive, memory and focus back to health-levels of a 30-year-old man.

NEW YORK: It's hard to believe that in America today; a pill that could change the lives of millions of men is in danger of being yanked from the shelves. And it's just because big drug companies fear for their profits!

Right now, the pharmaceutical industry is desperately trying to stop shipments of the widely anticipated "Jacked Up" pill. The pill, made for men over 50, was released early last month. Yet, despite Big Pharma's efforts, sales have already exceeded expectations.

Jaw-Dropping Results

The name says it all. The "Jacked Up" pill helps evaporate body fat, builds muscle mass, restores sex drive, increases energy, improves circulation and mental capacity – and boosts testosterone levels up to a whopping 170%. Doctors are astounded by its effects.

What You Stand to Lose if Big Business Wins

Why do drug companies want this pill stopped? Since the "Jacked Up" pill is natural, drug companies can't patent it (like they did with Viagra) and make big profits. Plus, **if you're over 50 and healthy, with a strong body, a healthy sex drive, a clear mind and youthful looks; you aren't likely to be buying expensive prescription pills.** That's the very reason big business is trying to have it pulled from the shelves.

"If you're over 50 and healthy... with a strong body, a healthy sex drive, a clear mind and youthful looks; you aren't likely to be buying expensive prescription pills"

How it Works

The "Jacked Up" pill works by reigniting testosterone production in older men (to levels they enjoyed in their early 30's). This formulation doesn't force dangerous synthetic

testosterone into your body like injections do. Instead, it works with your body to produce testosterone naturally. And the results have been extraordinary.

Initial Users are Thrilled!

"After 6 weeks I'm impressed! I'm getting lean but NOT losing strength and size... plus MY ABS ARE BACK! - *Eddie D. of Tarrytown, NY*

"I'm 67 years old and playing tennis again... tennis! - *Guy R. of Fresno, CA*

It's a miracle! I jump out of bed in the A.M. instead of crawl. I feel so much stronger too. Thank you for this! - *Michael B. of Dayton, OH*

Men report "feeling strong... with more energy, focus, drive, and enjoy an insatiable libido!" It's like your body reboots itself to feel like it did in the prime of your life.

"Big Pharma" Fat Cats Want it Gone

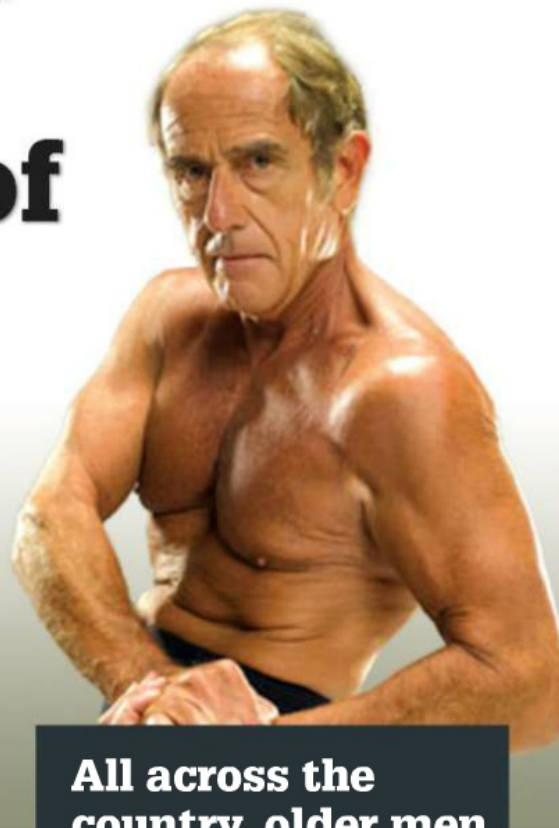
The powerful Pharma companies don't want this to be available to the public any longer. They want to produce their own synthetic version of the "Jacked Up" pill (They've tried. It doesn't work)...

Experts agree the "Jacked Up" pill is revolutionary.

You will see your belly fat melt away, enjoy impressive muscle growth, new interest in sexual relations, you'll feel younger, better, healthier, stronger, and your mind will feel focused and remarkably clear. But if big business gets its way you'll never have the chance to experience it for yourself. But you better stock up now... before it's too late!

Limited Supply

Supplies are disappearing quickly. People are scrambling to get their hands on as much as they can before it's gone. If Big Business wins, you will no longer be able to buy it – at any price! For



All across the country, older men are experiencing the startling effects of the 'Jacked Up' pill. No wonder why drug companies are so worried.

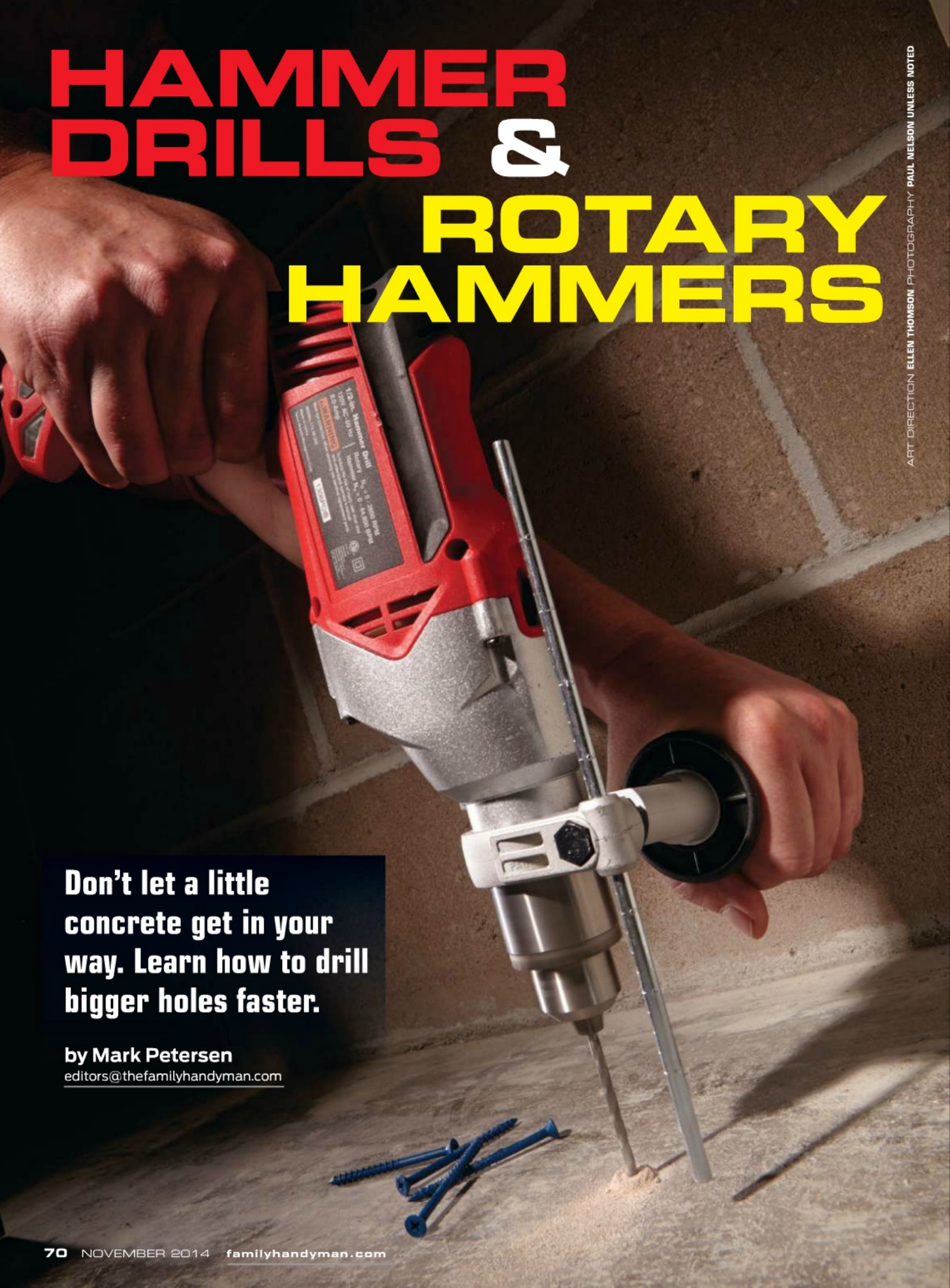
now, you can still get the "Jacked Up" pill over the counter, without a prescription. The changes you will see in your body are miraculous (fat evaporates, muscle mass builds, your sex drive and youthful energy returns, circulation intensifies—and your testosterone levels are restored).

The effects will be felt for years to come. But the distributors aren't sure how long they can sustain the pressure drug companies are putting on elected officials to halt its sale. So even if big government and Big-Pharma eventually succeed in burying "The Jacked Up" Pill – you can reap its benefits NOW and secure your well-being far into the future.

Special Opportunity for Our Readers

The makers of the "Jacked Up" pill are committed to beating Big Pharma pressure to keep this pill out of your hands. They are offering our readers (and you) this special opportunity to test the "Jacked Up" pill in your own home for a full 60-days—completely Risk Free. If you don't see remarkable changes in your body, your mind, your sex-life, simply return it... no questions asked, ever! If you would like to try the "Jacked Up" pill for yourself; **Just call toll-free 1-800-339-6804 and the distributor will send you a limited supply plus additional FREE BOTTLES** (just ask). But you must call now before it's too late!

HAMMER DRILLS & ROTARY HAMMERS



**Don't let a little
concrete get in your
way. Learn how to drill
bigger holes faster.**

by Mark Petersen
editors@thefamilyhandyman.com

ART DIRECTION ELLEN THOMSON PHOTOGRAPHY PAUL NELSON UNLESS NOTED

Sure, you can drill a hole or two in a concrete block with a regular drill and a masonry bit, but you'll want to step it up a notch if you have a whole bunch of holes to drill into 50-year-old concrete. In this story, we'll give you the lowdown on the differences between a hammer drill and a rotary hammer, and help you figure out which tool is right for you. We'll also show you some cool bits and accessories and share some useful tips on how to get the most out of these handy tools.

Hammer drills vs. rotary hammers

Hammer drills and rotary hammers (also called rotary hammer drills) both produce a pounding force that makes them extremely efficient at blasting through masonry. As it spins, the bit chisels away at the masonry. The mechanical process that delivers this pounding action is what separates the two tools.

A **hammer drill** has two discs that have ridges resembling the ridges on a poker chip (see **Figure A**). As one disc slides past the other, it rises and falls, causing the chuck to slam forward and back. If there is no force on the chuck, the discs are separated by a clutch and the pounding action stops. This saves wear and tear. Many hammer drills can be used as a regular drill by switching off the hammering action.

A **rotary hammer** creates its pounding action with a piston driven by a crankshaft (see **Figure B**). The piston rides in a cylinder and creates air pressure when driven forward, and it's the air pressure that actually drives the hammer mechanism. Rotary hammers provide a lot more impact energy than hammer drills. They're much more durable and are the preferred tool of the pros. Another big advantage is that most rotary hammers have three settings: drill mode, hammer drill or just hammer, so they can act like a mini jackhammer. Of course, they cost more than a hammer drill, but more on that later.

Hammer drill bits

You don't need to spend tons of money on bits, but more expensive bits are usually equipped with superior carbide tips, and the tips are more securely attached to the shank of the bits, which reduces breakage in heavy use.



HAMMER DRILLS AND ROTARY HAMMERS are both excellent for drilling masonry. Rotary hammers are more powerful, though, and have a "hammer-only" mode with no rotation. They usually have an SDS chuck, which is better for hammering.



FIGURE A



INSIDE A HAMMER DRILL
The hammering action is produced by two ridged discs riding on each other.

FIGURE B



INSIDE A ROTARY HAMMER
A piston compresses air to create the hammering effect.

Rotary hammer bits and attachments

The most popular type of chuck on the shelves at home centers today is the SDS-Plus. SDS-Plus bits have grooves on the shanks that lock securely into the chuck but allow the bit to move back and forth independently of the chuck. They're super easy to insert and remove—no tools required. Some of the really big rotary hammers (see p. 42) have a similar system, but larger, called the SDS-Max. And there are a couple brands that have proprietary systems, so make sure the bit you buy matches the tool you're using.

When set to hammer mode, rotary hammers can be used for all sorts of jobs, and there are a whole lot of attachments to get those jobs done.

A few of the more popular attachments are shown in the photo below right:

- Clay spade (\$60): Breaks up hard soil.
- Cold chisel (\$18): For busting up concrete.
- Tile remover (\$18): Works well for pulling up ceramic tiles.
- Bull point chisel (\$18): Used to start holes in concrete.
- Scaling chisel (\$25): Designed to remove rust, concrete and weld spatter.

If you already own a rotary hammer and are looking for a heavy-duty drill to bore large holes in wood or mix joint compound, consider buying an SDS-Plus chuck adapter (shown at right). This adapter will allow you to use smooth-shank drill bits, hole saws and mixing paddles. Just remember to keep the setting on drill mode or you could destroy the chuck.

Which drill is right for you?

You can spend \$50 on a hammer drill that will drill 1/2-in. holes in most masonry, but spending more will get you two things: the ability to drill bigger holes and—more important—faster drilling, which is great when you have lots of holes to drill.

The pounding power of a hammer drill is measured in BPM (beats/blows per minute). But the BPM rating isn't the whole story: Motor amperage and how the drill feels in your hands are more important. All-metal chucks are more durable than ones with plastic parts. And



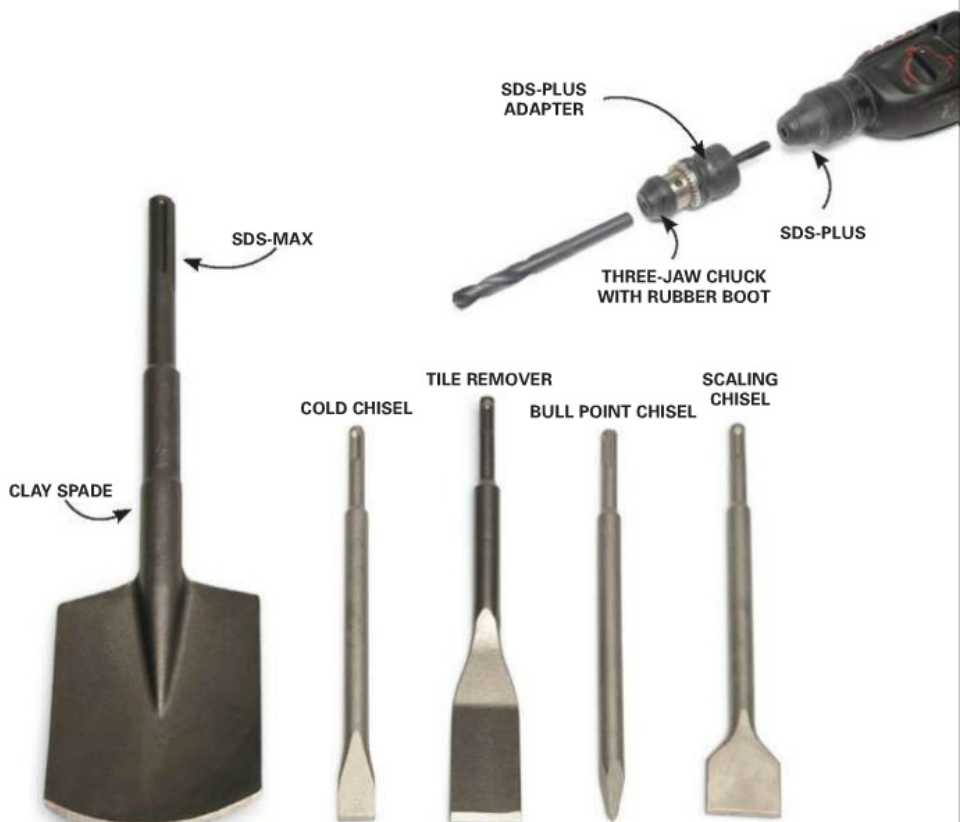
HAMMER DRILLS ARE PERFECT FOR LIGHT MASONRY

A hammer drill works best at drilling holes in bricks, mortar and concrete blocks. But it can also handle the occasional hole in poured concrete.



ROTARY HAMMERS ARE FOR LARGER JOBS

Rotary hammers excel at drilling holes in hardened concrete. They can also be fitted with all sorts of other attachments.



ROTARY HAMMER ACCESSORIES include a variety of chisels for scaling metal, breaking concrete, removing tile and even digging hard soil. (The one on the left is for an SDS-Max chuck.) You can also add a three-jaw chuck for regular drill bits.

World Leading Expert Unveils Exciting News for People with Memory Loss

JFK Award Winner, Dr. Meir Shinitzky Uncovers Shocking New Nutrient that Restores Mental Clarity, Improves Focus and Impaired Memory

BY STEVEN WUZUBIA
HEALTH CORRESPONDENT;

Clearwater, Florida: Dr. Meir Shinitzky, Ph.D., is a former visiting professor at Duke University, recipient of the prestigious J.F. Kennedy Prize and author of more than 200 international scientific papers on human body cells. But now he's come up with what the medical world considers his greatest accomplishment--A vital compound, so powerful, it's reported to repair... even regrow damaged brain cells. In layman's terms -- Bring back your memory power. And leave you feeling more focused and clear-headed than you have in years!

Dr. Shinitzky explains this phenomenon in simple terms; "Science has shown when your brain nutrient levels drop, you can start to experience memory problems and overall mental fatigue. Your ability to concentrate and stay focused becomes compromised. And gradually, a "mental fog" sets in. It can damage every aspect of your life". Not only do brain cells die but they become dysfunctional as if they begin to fade away as we age. This affects our ability to have mental clarity and focus and impacts our ability to remember things that were easy for us to do in our 20's and 30's.

Why Now, Why So Fuzzy?

Scientists think the biggest cause of brain deterioration in older people is the decreased functioning of membranes and molecules that surround the brain cells. These really are the transmitters that connect the tissues or the brain cells to one another that help us with our sharp memory, clear thinking and mental focus, even our powers to reason well. "When we are in our 20's" according to Dr. Shinitzky "our body produces key substances like phosphatidylserine and phosphatidic acid" ...unfortunately they are believed to be critical essential nutrients that just fade away with age, much like our memories often do leading to further mental deterioration.

As we get older it becomes more frustrating as there is little comfort when you forget names... misplace your keys... or just feel "a little confused". And even though your foggy memory gets laughed off as just another "senior moment", it's not very funny when it keeps happening to you.

The Missing Link is Found and Tested

It's hard to pronounce that's for sure, but it certainly appears from the astounding clinical research that this one vital nutrient phosphatidylserine (PS) can really make a huge difference in our mental wellness. 17 different double blind studies with placebo controlled groups have been involved in the clinical research of PS with patients between the ages of 55-80 years of age. Periodically the researchers gave these patients memory and cognitive tests and the results were simply amazing:

- 1) PS patients outperformed placebo patients in All 5 Tests - 100% Success Rate
- 2) After only 45 days there was a measurable improvement in mental function
- 3) After 90 days, there was an impressive and amazing improvement in mental function

The group taking phosphatidylserine, not only enjoyed sharper memory, but listen to this... they were also more upbeat and remarkably more happy. In contrast, the moods of the individuals who took the placebo (starch pill), remained unaffected....no mental or mood improvement at all.

Unblock Your Brain

This incredible PS nutrient feeds your brain the vital nutrient it needs to stay healthy... PS now has the attention of some of the world's most prominent brain experts. It has been written up and published in leading science and medical journals and its findings have electrified the International scientific community.

My Memory Was Starting to Fail Me.

I would forget all kinds of things and something that I just said earlier in the day would have completely slipped my mind. Over the last several months my memory was getting pretty unreliable and I was worried about it. I thought I'd better do something about it now. I read about Lipogen and wanted to try it. It's great! I have actual recall now, which is super. I began to notice that I wasn't forgetting things anymore. Thanks Lipogen for giving me my memory back. It's given me back self-confidence and self-esteem. I would not trust my memory without it.

- Ethel Macagnoney



Dr. Meir Shinitzky, Ph.D. a former visiting professor at Duke University and a recipient of the prestigious J.F. Kennedy Prize

Earth-shaking Science

Published, clinical reports show replenishing your body's natural supply of Phosphatidylserine, not only helps sharpen your memory and concentration—but also helps "perk you up" and put you in a better mood. PS as it turns out also helps to reduce everyday stress and elevate your mood by lowering your body's production of the hormone cortisol. When cortisol levels are too high for too long you experience fatigue, bad moods and weakness. This drug-free brain-boosting formula enters your bloodstream fast (in as little as thirty minutes).

Officially Reviewed by the U.S. Food and Drug Administration, Lipogen PS Plus is the ONLY Health Supplement that has a "Qualified Health Claim for both Cognitive Dysfunction and Dementia".

Special "See For Yourself" Risk-Free Supply

We've made arrangements with the distributor of this proprietary blend of PS, which combines with several other proven special brain boosting natural ingredients to give you the mental clarity and memory gain that you need, to give you a Risk-Free trial supply. This is a special "Readers Only Discount". This trial is 100% risk-free.

It's a terrific deal. If Lipogen PS Plus doesn't help you think better, remember more... and improve your mind, clarity and mood – you won't pay a penny! (less s&h). But you must act fast. Your order can only be guaranteed if it comes in within the next 7-days. After that, supplies could run out. And your order may not be fulfilled until they are replenished.

So don't wait. Now you can join the thousands of people who think better, remember more—and enjoy clear, "fog-free" memory. Call today, toll-free at 1-800-428-2462. Think of it as making a "wake-up call" to your brain.

REBAR
TIP

STANDARD
CARBIDE TIP



SOME BITS EAT REBAR

When you need to drill into reinforced concrete, invest in a bit that's designed to chew through mesh wire and rebar as well as concrete.

while keyless chucks are handy on a regular drill, they often don't have the holding power needed for drilling into masonry. Chuck size often dictates the maximum recommended hole size the drill can handle.

The pounding power of a rotary hammer is measured in pounds of impact energy. When shopping for rotary hammers, more amp power is good, but more impact energy is even more important. Rotary hammers are categorized by the maximum-size hole recommended by the manufacturer, but that doesn't

mean they can't drill a larger hole once in a while. If you need a drill for nothing but 7/8-in. holes, buy a larger drill that won't have to work at its maximum capacity all the time.

Cordless

If you already own cordless tools, check to see whether the same company makes a hammer drill or rotary hammer that works with the same batteries. Sometimes you can buy a cordless tool without the battery cheaper than you can buy a corded one.

WHAT YOU GET

\$50 TO \$100

Hammer drills in this price range have motors with 6 to 8 amps. Good for drilling holes up to 1/2 in. in block, mortar, brick and other light masonry. These drills will also bore into concrete, but slowly.

\$100 TO \$150

Hammer drills in this price range feature motors ranging from 7 to 10 amps. Good for drilling holes up to 5/8 in. in light masonry and concrete.

\$150 TO \$225

In this price range, rotary hammers have motors that range from 7 to 10 amps and deliver 1.5 to 3 ft.-lbs. of impact energy. Good for drilling holes in light masonry, and concrete up to 1 in. Can also be used in hammer mode to remove mortar, bust small areas of concrete and chisel tile.

OVER \$225

Rotary hammers in this price range deliver an impact energy of over 10 ft.-lbs. and can drill 1-3/4-in. holes all day long. They cost \$400 to \$800, but rent for about \$60 per day.

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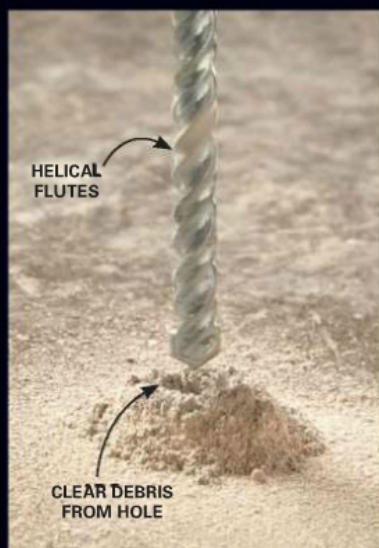
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DRILLING TIPS



Clear the debris

The flutes on a drill bit are designed to pull up the debris from the hole as you drill, but the best way to clear the hole is to occasionally pull the bit out of the hole as you're drilling. Less debris in the hole reduces friction, which means smoother drilling, less chance of binding and longer-lasting drill bits.



Avoid overdrilling

Most hammer drills and rotary hammers are sold with a side handle and depth stop. Do yourself a favor and use them. There's no reason to burn up both time and bits by drilling deeper holes than you need to. And you don't always want to drill all the way through a concrete block to its hollow core—some plastic anchors need a back to stop them or they will get pushed right through the hole.



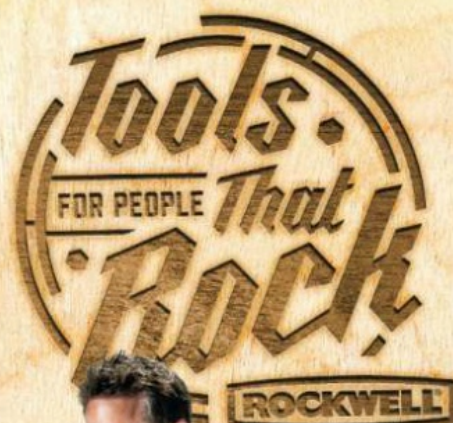
Don't push too hard

There's a "sweet spot" where the right rpm combined with the right pressure drills fastest. But you won't find that sweet spot by pushing down as hard as you can. In fact, too much pressure will slow the drilling process and put a whole lot of unnecessary wear and tear on the motor gears. Plus, you'll break bits.



Drill a smaller hole first

If you need to drill a couple holes that are larger than the recommended capacity of your drill, start with a smaller hole first. This will significantly reduce the load on the drill. Also, smaller bits don't skate around as much as larger bits do, which is helpful when you need a hole in a precise spot.



THE GO-TO SAW THAT GOES ANYWHERE

Bladerunner X2

The new Bladerunner X2 from Rockwell is the go-to cutting machine for hobbyists and pros alike. At less than 15 pounds, it sets up in seconds and travels anywhere. Versatile T-shank jigsaw blades cut everything, even ceramic tile. Perfect for quick rip, scroll, crosscuts, and intricate miter cuts.

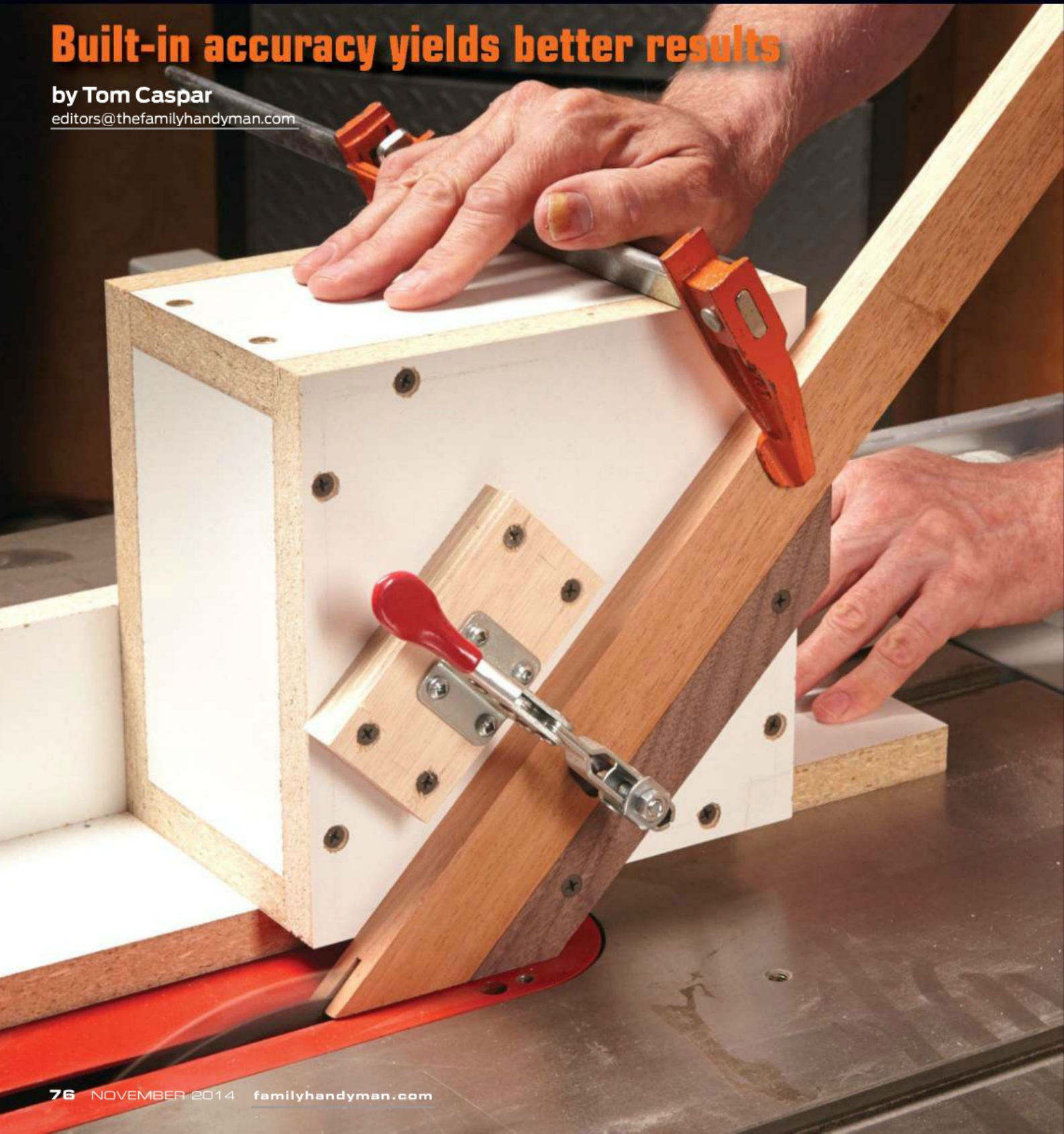
ROCK YOUR NEXT PROJECT AT
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10 DIRT-SIMPLE WOODWORKING JIGS

Built-in accuracy yields better results

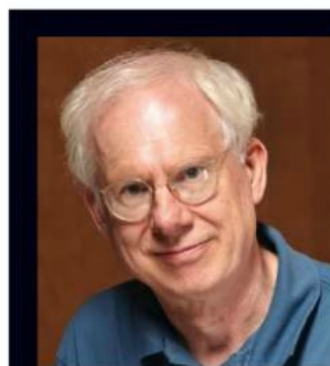
by Tom Caspar

editors@thefamilyhandyman.com



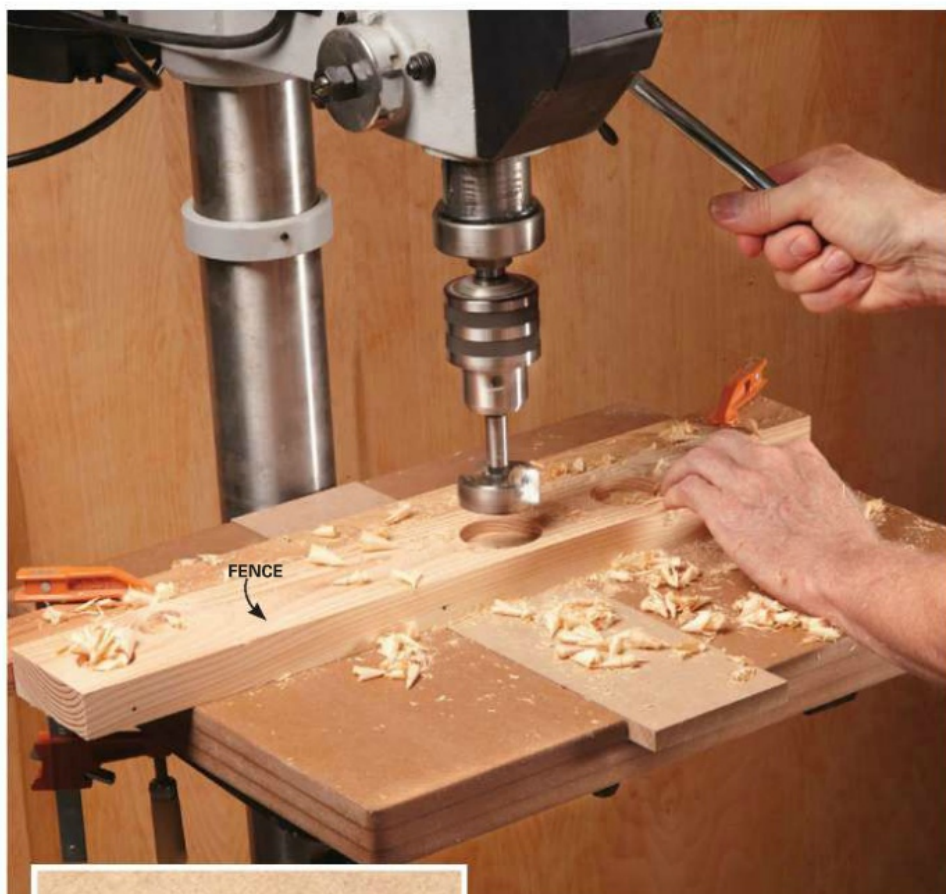
For a woodworker, good jigs are golden. They ensure that cuts are straight, holes are plumb and parts are square—among many other things. Sure, they take extra time to make, but they're worth it because you'll use them over and over again for years.

I've built lots of jigs over my 35 years as a cabinetmaker. Many, I regret to say, have been ridiculously complex, but these days I try to adhere to the KISS principle: Keep it simple, stupid! Here are 10 of the jigs I use most often.



MEET THE EXPERT

Tom Caspar's passion for woodworking goes way back. He's been a professional cabinetmaker since 1978 and recently retired as editor of *American Woodworker Magazine*.



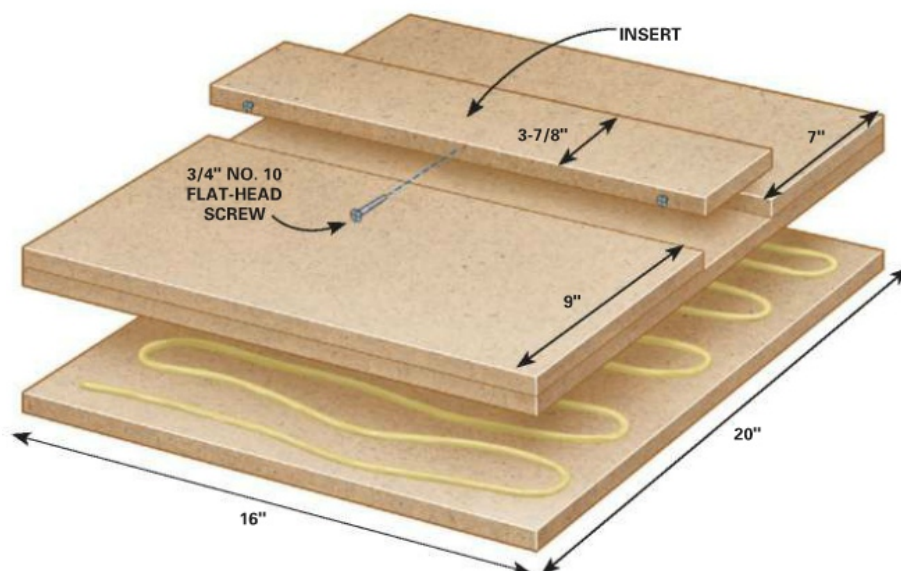
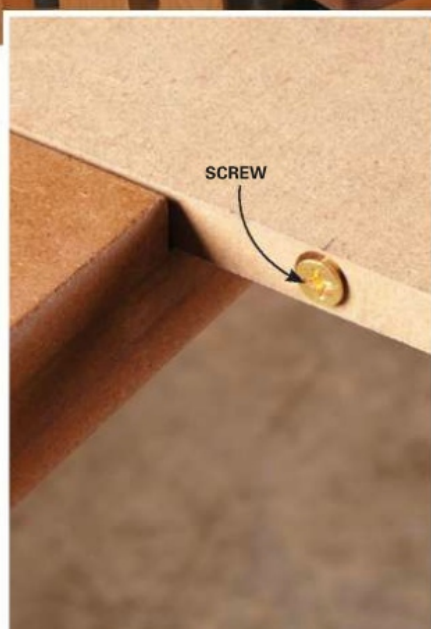
Drill press table

I love my drill press, but its table is way too small because it was designed for metalworking. In addition, the table doesn't have a fence or an insert to back up holes drilled all the way through a piece of wood. This jig solves all three problems.

I made the table from three layers of 1/2-in. medium-density fiberboard glued together. It's fastened to the machine's table from underneath with four lag screws.

The table's top layer is composed of three pieces. The outer pieces are glued to the table, while the center piece—the insert—is loose. The insert is 1/8 in. narrower than the gap between the two outer pieces. I installed three flat-head screws in the side of the insert and adjusted them so the insert fits snug in the gap (see detail, below left). When I need a fresh surface to drill into, I slide the insert in or out, flip it around or flip it over. I also made a few extra inserts so I can toss one away when it starts looking like Swiss cheese.

The fence is just a plain board clamped to the table.





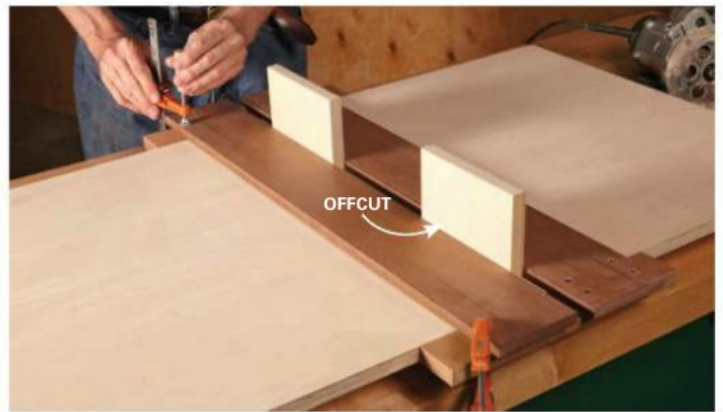
Jig for routing dados

When I build a cabinet, I often use dados to ensure that shelves and partitions are spaced correctly. To make a strong joint, the width of the dados must exactly match the thickness of the plywood. That can be a challenge because few pieces of plywood are precisely 3/4 in. thick. They're usually 1/32 in. or so less than the "nominal" thickness. I designed this jig to rout perfect-fitting dados for any piece of 3/4-in. plywood regardless of its actual thickness.

I use a special top-bearing trim router bit (shown below right) with the jig. The bit is 1/2 in. wide, 1/2 in. long and has a bearing mounted above the cutter. The bearing is flush with the bit's cutting edges.

The routing jig has two long, parallel guides made from 1/2-in. MDF. When I rout the dado, I ride the bearing along one guide, then make a second, return pass and ride the bearing along the second guide. This way, the space between the guides determines the width of the dado.

Setting up the guides is easy. One guide is fixed to the jig's 3/4-in. cross members; the other is loose and adjustable. I take two small pieces of the plywood I'm using and place them against the fixed guide. Then I slide the adjustable guide against the pieces and clamp the guide to the cross members. Done!



1 PERFECT DADOS MADE EASY

Use this jig to rout a dado that perfectly fits any piece of 3/4-in. plywood. Take two passes with a 1/2-in. top-bearing bit.

2 GOOF-PROOF SETUP

Set up the jig using scrap pieces of your plywood to space the guides. It's foolproof!

SACRIFICIAL FENCE

When I have to adjust my table saw's fence so it sits right next to the blade, I put a "sacrificial" fence on the saw. Using a sacrificial fence avoids accidentally cutting into the real fence, which would be really bad news.

My sacrificial fence is made of four thicknesses of 1/2-in. MDF glued together. (Three-quarter-inch plywood would work just as well.) I cut the middle pieces into thirds in order to create holes for clamping. The holes ensure that the clamp's heads won't get in my way when I'm making a cut.

The beauty of this system is that you can use all sides of the fence until it wears out—but it's easy to make another!





Table saw guide box

When I have to stand boards on end to machine them on my table saw, I pull out this simple box. It steadies the wood so I get a straight cut. The box is made of melamine and measures 8 in. square and 5-1/2 in. deep. It's screwed to two optional runners that are 12 in. long.

Here, I'm cutting slots into the ends of each part of a picture frame so I can join them with spline (thin pieces of solid wood). I couldn't do this using the table saw's fence alone because the fence doesn't offer enough support—it's not tall enough. Using this box, I'm sure to get an absolutely straight cut.

My picture frame piece is supported by a block that's screwed to the box. If I need to support pieces at 90 degrees—for cutting tenons, for example—I just remove the 45-degree support and screw on another.

To ensure a straight cut, I clamp the workpiece to the box. I use a toggle clamp to hold the frame's lower end because it's difficult to get a regular clamp down there. The table saw's fence gets in the way. You can buy a toggle clamp at a woodworking store or online for less than \$10.

My favorite materials for jigs

You can build a good jig from just about anything, but I usually turn to three different materials: MDF, Baltic birch plywood and melamine. Each has its own advantages—and disadvantages.

■ **MDF** (medium-density fiberboard) is inexpensive and dead flat. It's not very strong, however, and will sag if left unsupported.

■ **Baltic birch**—or equivalent plywood made from multiple veneers of equal thickness—is much stronger and stiffer than MDF. It also holds screws much better. Large pieces may or may not be flat. The best material comes in awkward-to-transport 5 x 5-ft. sheets.

■ **Melamine** has two slick faces. If you need parts to slide past each other, this stuff is great. However, melamine usually has a chipboard core, which doesn't hold small screws very well.

NO-WIGGLE CROSSCUTS

If your miter gauge's bar wiggles in the saw's miter slot, you'll have a hard time getting an absolutely straight crosscut. Here's a way to fix that: Use two miter gauges connected by a fence.

An extra miter gauge isn't very expensive, but you can cut the cost to zero by making one yourself. Glue two pieces of Baltic birch plywood together to form an L-shape body, then carefully cut a bar to fit snugly into your saw's miter slot.

I used a piece of maple to make the bar, but 1/4-in. tempered hardboard is also a good choice. Glue the bar to the body using spring clamps, so you can easily adjust the bar to be exactly 90 degrees to the body before the glue sets. Install screws later.

You probably won't be able to use your saw's guard with this setup, so it's a good idea to add a plastic shield to the fence. The shield will remind you not to put your fingers too close to the blade and will keep the sawdust out of your eyes.





Boost your holding power

When you clamp a board using only one side of your vise, have you noticed that the board often slips or rotates if you push down on it? That's because the vise's jaws don't stay parallel when the vise is tightened. Your board is getting pinched only along one edge. Even the best vises "rack" like this.

Fixing the problem is quite simple. You just need to place a spacer on the opposite side of the vise. The spacer should be the same thickness as your workpiece—a scrap offcut works well. Drive a screw into one end of the spacer or pinch it with a spring clamp so you don't have to hold on to the spacer while tightening the vise.

EXTRA-LARGE SANDER TABLE

When I bought a benchtop disc sander a few years ago, I asked the clerk, "What's with the small table? I'm not just making dollhouse furniture, you know."

Well, of course the clerk couldn't make the table larger, but I sure could. I made a new one and clamped it to the original table. At first I thought I would add the extra-large table only when I needed it, but once I put it on, I never took it off! This jig is far fancier than it has to be—a plain piece of melamine would have sufficed.



Squaring blocks

A cabinet that's out of square is like a house built on a foundation that's not level. Good luck getting doors to hang right! When I glue and clamp up a case, I often use a couple of "squaring blocks" to make sure the case has 90-degree corners. I clamp the blocks to the case before putting the final squeeze on the case's clamps.

This type of squaring block is very easy to make. First, cut a piece of plywood about 8 in. square. (Make sure the inside corner is truly square by testing it with a combination square.) Next, screw two 3/4-in. x 2-3/4-in. x 7-in. lips to adjacent sides of the block for clamping. Leave a gap at the inside corner of the block so you can remove glue that squeezes out of the joint.

NEWLY UPDATED

THE ULTIMATE DIY GUIDE

ALL THE KNOW-HOW YOU NEED

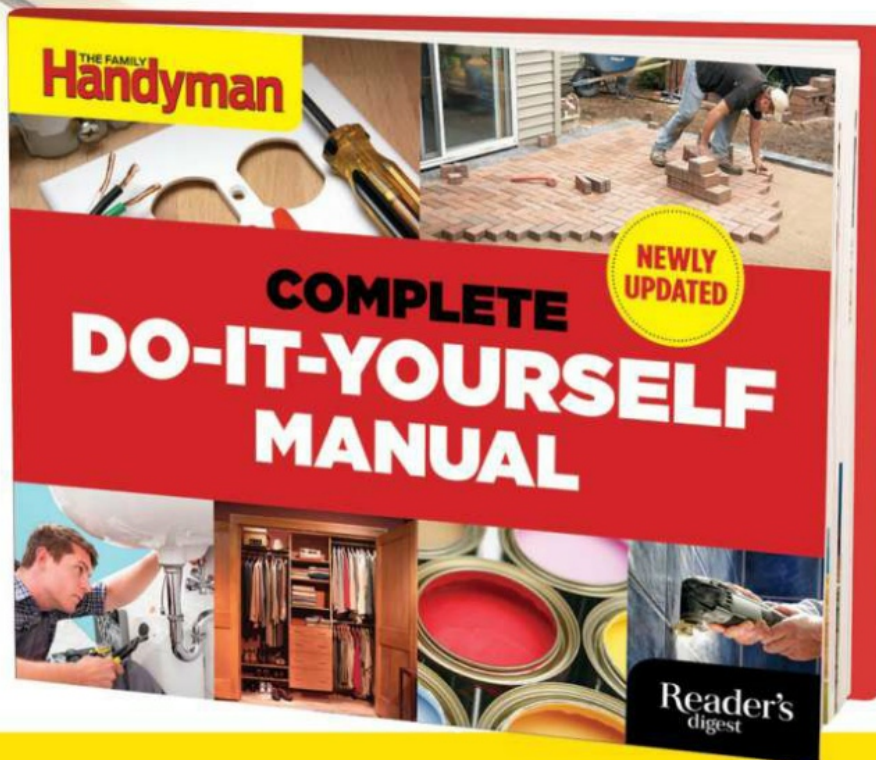


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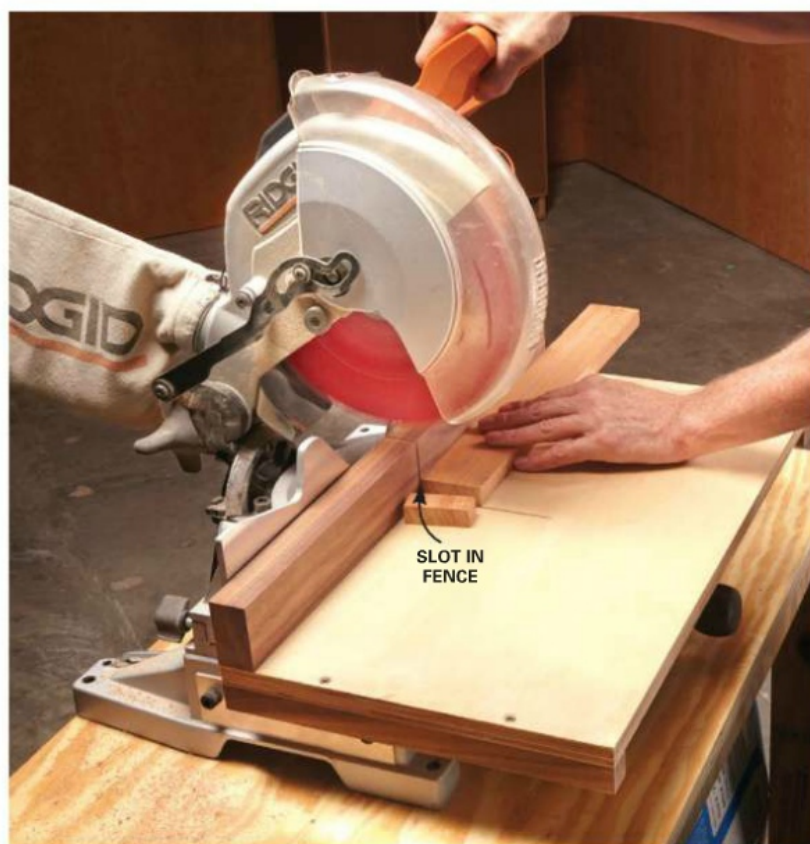
Three-layer hole spacer

OK, I know you've seen this trick before—using a piece of pegboard to drill evenly spaced holes for shelf pins. But here's my take on it: Make the jig from three layers of pegboard.

A thick jig has a couple of advantages. First, the holes won't wear out as fast (holes in a single layer of pegboard tend to become oval quickly). Second, the additional thickness will help keep your drill perpendicular to the panel.

When using the jig, I tape over the holes I don't need so I don't make a dumb mistake. I also slide a wood block onto the drill bit to limit the hole depth.

So, how do you keep the holes aligned when gluing the pieces together? It's really quite simple. Insert a couple of 1/4-in. machine bolts through opposite ends of the glue-up, then add washers and nuts. Tightening the nuts will force the pieces into alignment and keep them there. Trim the edges of the jig after the glue dries.

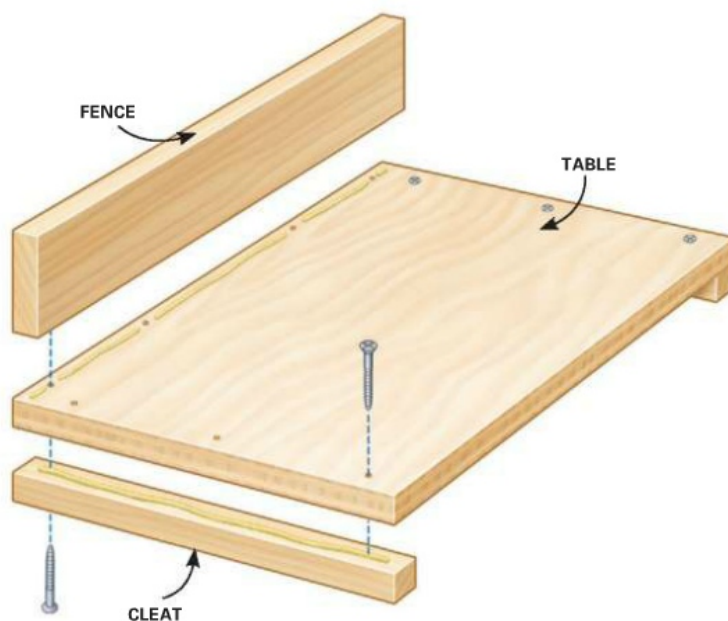


Accurate miter saw cuts

I clamp this small Baltic birch table to my miter saw when I want to cut a few short pieces to an exact length. The slot in the table's fence shows me precisely where the blade will cut—I just mark my piece with a pencil and line up the mark with the slot.

The slot has “zero clearance,” meaning there's no gap on either side of the blade. The slot in the table is zero clearance too. Zero-clearance slots reduce tear-out to an absolute minimum, eliminating splintered edges.

When I made the table, the fence was one long piece of wood. I screwed cleats to the table's ends to lock the table in place, then lowered the saw to cut the slot in the fence. Note that the table must be wider than your saw's turntable—the uncut portion of the table is what holds it together!





Survival food stockpiles are disappearing in droves from suppliers across the USA. Shortages could happen as soon as a few days or weeks.

Who's behind disappearing survival food stockpiles?

Citizens are being urged to claim emergency food kits as soon as possible, while they are still available. You can watch a groundbreaking video at GETFOOD74.COM that sheds light on this disturbing trend.

Across the country, survival food is disappearing by the pallet. This has been leading people to ask the question, "Why is survival food in such high demand?" The answer may be revealed with a disturbing discovery involving the Department of Homeland Security – and more specifically, FEMA.

➤ Stockpiling Food Has Become Critical

The New York Times, Forbes, and The Guardian have all reported multiple, glaring warning signs that the world is headed for trouble when it comes to adequate food stores. The natural disasters keep multiplying and our country's infrastructure keeps getting weaker. The new reality of disappearing survival food stockpiles has some thinking that those predictions are now coming true, and that a disaster of monumental proportions is just around the corner.

➤ Multiple Threats to Food Supply

Contributing to the sense of urgency is the current state of the nation and world at large: the immigration crisis, possible pandemics like Ebola and TB, global terrorism, and other national security threats have the population on high alert. Ever since 9/11, more and more people have recognized the need to be prepared. Now, however, the signs of an impending, extended disaster lasting days, weeks, or even months have convinced most people that time is short to act on gathering necessary supplies.

➤ Less Than 7% of Americans Prepared

Cory Lundin, a well-known survival expert, states that, "less than 7% of Americans are prepared for a crisis." That may seem like a really small number, but unfortunately it's true. Most Americans don't have enough food to make it through a disaster in one piece. And the time to secure an adequate supply of high-quality survival food is fading fast.

Unfortunately, many of those who ignore the blatant warnings of an imminent crisis will have no other choice than to turn to FEMA for help. For examples of this outcome, just remember the fate suffered by those caught off guard in Super Storm Sandy. Some New Yorkers who had gone without food for days were witnessed dumpster diving, picking over rotting garbage just to score a small meal. Or Hurricane Katrina, with thousands of people displaced by the storm, desperately trying to get by – hungry, thirsty, and without any other options, while FEMA officials did paperwork.

➤ Suspicions Shift to FEMA

When it comes to who is actually buying up the food, suspicions have shifted and reports are coming in that FEMA may actually be behind this rush to secure an adequate supply of survival food in the event of a mega-disaster. Even more important than knowing who is behind the vanishing survival food is - why are they making such large purchases? What does this scheme of survival food hoarding actually mean? Could martial law be declared?

➤ Proof of Possible Conspiracy

Just recently, a major survival food supplier received a letter from FEMA asking a bunch of questions having to do with how much food he has on hand, how fast it could be delivered, and if "dedicated truckloads" could be shipped immediately.

Frank Bates, of Nashville, TN, first became aware of this startling new reality. Mr. Bates has "blown the whistle" on this problem by making a shocking video uncovering the truth about survival food and the critical mistakes many people are making when it comes to their food stockpile. Due to its controversial content, this video at GetFood74.COM is being threatened by those in power with removal from the Internet and unbelievably, being banned by Google.

What You Can Do

Because of these multiple warning signs, Americans are being urged to secure an adequate supply of survival food as soon as possible. However, it's important that you know the facts before purchasing just any survival food, as they vary in taste, quality, and shelf life. Not only that, you need to know the back story of why survival food is so hard to come by, and how you can protect your family from going hungry in a coming catastrophe.



Survival food is flying off warehouse shelves at record rates, and some are wondering who's behind the massive buy outs.



Americans are urged to act now and fortify their survival food stockpile while there is still time.

Learn everything you need to know about what's really going on with the FEMA and their plot to get their hands on as much survival food as possible by viewing the new video at GetFood74.com.



by Tom Caspar
editors@thefamilyhandyman.com

ART DIRECTION VERN JOHNSON • PHOTOGRAPHY TOM FEWENCA

BUILD A ROLLING SHOP CART

Whether your shop is big or small, it's sure handy to have a cart or two for moving stacks of parts from one machine to another. My carts make an endless journey around my shop, from planer to table saw to drill press to sander, and on and on. They're never empty!

Constructing this cart is simple—all the parts are just glued and screwed or nailed together. You'll need one full sheet of 3/4-in. plywood and a box of 1-1/4-in. screws.

Sometimes I use a cart to support my table saw work, so I built my carts the same height as my saw. If you want to do the same, buy the casters for your cart before cutting any parts to size. (I recommend using casters that are at least 2-1/2 in. in diameter.) Then measure the total height of one caster and alter the lengths of the cart's legs as needed.

I've laid out the parts so you can crosscut your plywood into three 32-in. pieces before having to cut anything to exact size. It's OK if these crosscuts are rough; a jigsaw or circular saw would work fine. After this, it's best to use a table saw for ripping the parts and a miter saw or table saw for cutting them to length.

After breaking down the plywood into manageable sizes, cut all the leg pieces (A and B). Glue them together, using nails or screws to hold them together while the glue dries. Make sure their ends are even.

Cut the parts for the upper and lower boxes (C, D, E and F) and glue and screw them together. Next, cut the shelf and bottom (G) to fit the boxes and glue and screw these pieces into place. (Adding a bottom to the upper box makes it easier to clamp things to the top of the cart. Without a bottom, you'd only have a narrow 3/4-in. edge to clamp to.) Make sure the shelf and bottom don't overhang each box or the legs won't fit correctly. To avoid any overhang, you could cut the shelf and bottom 1/16 in. smaller all around.

Fasten the legs to the boxes, using three screws at each corner. Finally, cut the caster supports (H) and top (J) to size and add them to the cart. Fasten the casters using 3/4-in. No. 14 sheet metal screws.

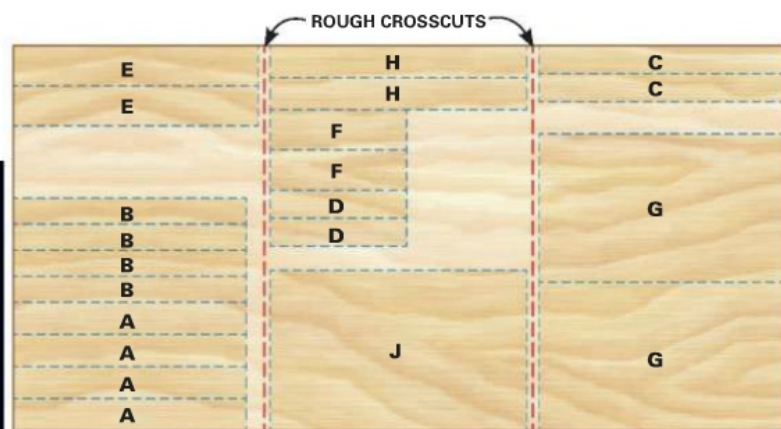
Figure A Rolling shop cart

Overall dimensions: 20" wide x 32" long x 34-1/4" tall
All materials are 3/4" thick



Cutting List

KEY	QTY.	DIMENSIONS	NAME
A	4	3/4" x 4" x 29"	Wide leg pieces
B	4	3/4" x 3-1/4" x 29"	Narrow leg pieces
C	2	3/4" x 3-1/2" x 30-1/2"	Upper box, long sides
D	2	3/4" x 3-1/2" x 17"	Upper box, short sides
E	2	3/4" x 5" x 30-1/2"	Lower box, long sides
F	2	3/4" x 5" x 17"	Lower box, short sides
G	2	3/4" x 18-1/2" x 30-1/2"	Shelf and bottom
H	2	3/4" x 4" x 32"	Caster supports
J	1	3/4" x 20" x 32"	Top



Meet the Expert

Tom Caspar has been rolling around his workshop for more than 40 years. He recently retired as editor of *American Woodworker* magazine.

DIY Quiz

BY TRAVIS LARSON

editors@thefamilyhandyman.com

Put on your thinking cap and take this month's quiz to see just how smart you are when it comes to DIY. Here's how it works:

- There are easy, intermediate and really tough questions all mixed together.
 - There may be more than one correct answer!
 - Find the answers and get your DIY rating on p. 88.
- Good luck!

1. Every water heater has several safety devices to prevent overheating and explosion. This pipe is one of them. What's the name of the device it's attached to?

- A. Temperature and pressure relief valve
- B. Hot water overflow
- C. Drain valve
- D. Steam relief valve

2. It's almost impossible to put together or take apart runs of threaded pipe without one of these fittings. What is it?

- A. Antistatic valve
- B. Threaded coupling
- C. Dielectric nut
- D. Union

3. What is this small piece of pipe at the end of the vertical drop, just before the controls?

- A. Drop tee
- B. Catchment nipple
- C. Drip leg
- D. Sediment bowl

5. The most complex part of a gas water heater is the little box on the side that regulates the flow of gas to the burner. What's it called?

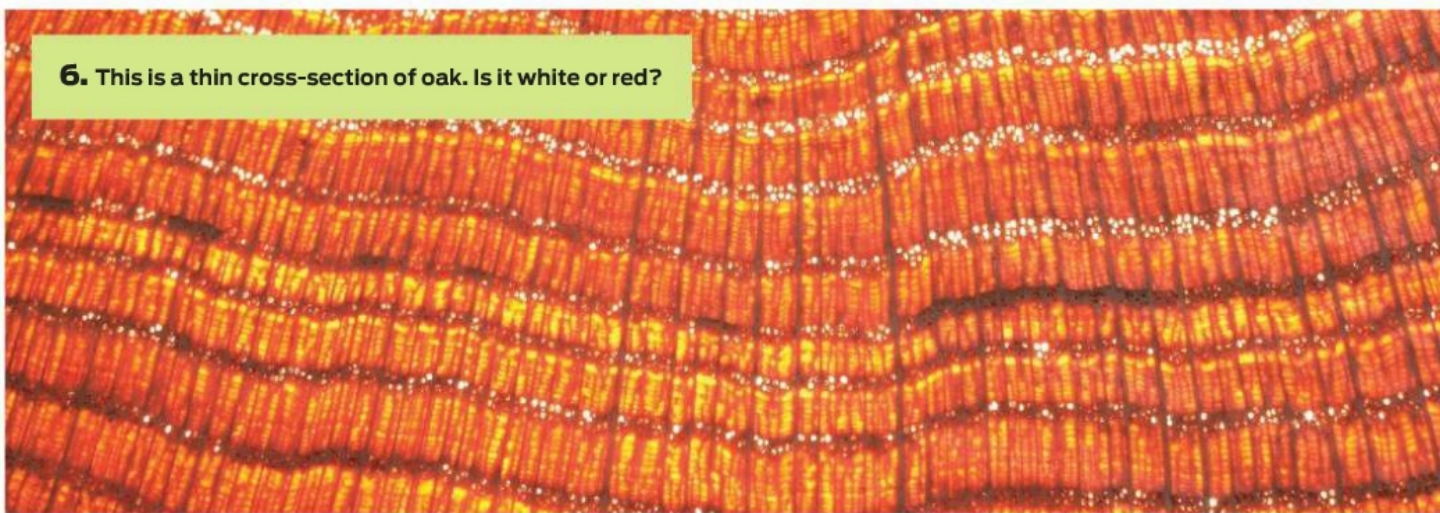
- A. Thermoregulator
- B. Gas control valve
- C. Gas shutoff
- D. Gas regulator

4. Three tubes come out of the control box. One is the gas supply to the burner, one is the gas supply to the pilot light and the third is the:

- A. Backup pilot light
- B. Thermogenerator
- C. Thermostat
- D. Thermocouple



6. This is a thin cross-section of oak. Is it white or red?



7. What in the world is this thing?

- A. Window mullion clamp
- B. Edge-banding guide
- C. Honing guide
- D. Thickness replicating jig



8. Say you need to build a header for a 36-in.-wide door. How long should you make it?

- A. 36-1/2 in.
- B. 38-1/2 in.
- C. 39-1/2 in.
- D. 41-1/2 in.

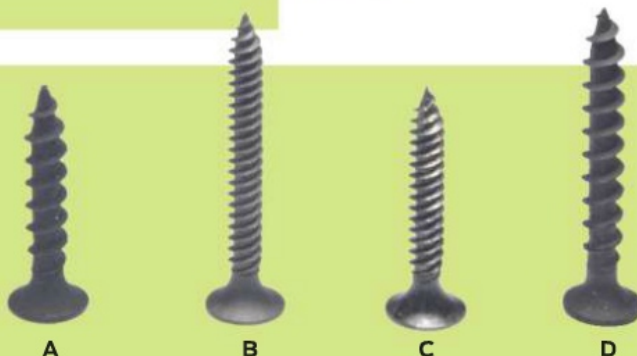
9. What does the yellow color of this electrical cable tell you?

- A. It means it's 12-gauge.
- B. It means it's 14-gauge.
- C. It denotes "UF," or underground feed.
- D. It's just to make the cable easier to see.



10. Which of the screws pictured should be used to hang 1/2-in. drywall on a wooden stud wall?

- A. 1-1/4-in. coarse thread
- B. 1-5/8-in. fine thread
- C. 1-1/4-in. fine thread
- D. 1-5/8-in. coarse thread



11. True or False? When you're buying sheet metal, the higher the gauge, the thinner the material.

12. True or False? It's a really bad idea to try to use latex paint that's been frozen.

13. Universal antifreezes shouldn't be used in your late-model car because:

- A. You may void your engine warranty.
- B. It may not be compatible with the metals and plastics in your cooling system.
- C. Universal coolants don't cool as well as the coolant recommended in your owner's manual.
- D. Actually, there are zero problems with using an aftermarket coolant.

14. Where is the most common place for DIY eye injuries at home?

- A. Garage
- B. Living area (living room, bedroom, kitchen, etc.)
- C. Yard and garden
- D. Basement

15. True or False? Experts recommend periodic duct cleaning to keep indoor air quality high and make furnaces last longer.

**FIND
THE DIY
QUIZ
ANSWERS
ON
PAGE 88**

DIY Quiz Answers

1. (A) Temperature and pressure relief valve. If for any reason the burners don't shut off after the temperature setting is reached, incredible steam pressure can develop, actually causing the water heater to explode. This valve allows pressure to safely escape.

2. (D) A union is a unique fitting in that it has two machined plates that fit tightly together to form a seal. Unlike other fittings, it allows you to connect or disconnect an appliance without turning the pipe.

3. (C) The drip leg catches little flecks of rust and other debris to keep them out of valves and orifices, much like the sediment bowl on an engine carburetor.



4. (D) Thermocouple. The pilot flame heats the thermocouple, which sends an electrical signal to the gas valve confirming that the pilot is lit. When the thermostat calls for the burners to ignite and reheat the water, the gas valve opens and the pilot flame ignites the burners. If the pilot is out, the gas valve won't see voltage and won't allow gas to flow to the burners. Otherwise, the unignited gas would fill the house, and trust us, you don't want that.

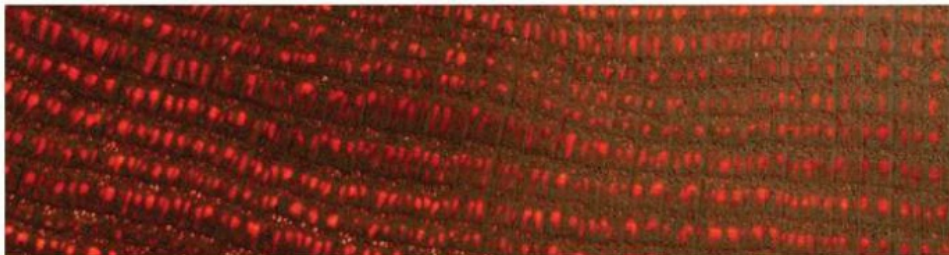
5. (B) Gas control valve

WHAT'S YOUR LEVEL OF EXPERTISE?

Beginner: 0 – 5 correct

Intermediate: 6 – 12 correct

DIY Guru: 13 – 15 correct



6. Red oak. The giveaway is the pinpoints of light showing hollow water vessels that conduct water up the tree. The vessels of white oak are generally filled with resins. When red oak lumber is used outdoors, those vessels siphon water deep into the wood and cause rot. White oak, on the other hand (shown above), is very rot resistant because those vessels are sealed, making it an excellent wood to use for outdoor furniture.



7. (C) It's a honing guide used to sharpen both plane irons and chisels.

8. (D) 41-1/2 in. Add 2-1/2 in. to the door size to get the rough opening and then 3 in. more to allow for the 1-1/2-in.-thick trimmers supporting the header at both ends.

9. (A) Yellow indicates 12-gauge. White indicates 14-gauge. That way electricians and inspectors know at a glance whether the correct gauge is being used. But this color-coding system has only been around a few years. Older 12-gauge cable is white.

10. (A) Coarse-thread screws are the right choice for wood. Use 1-1/4 in. for 1/2-in. drywall and 1-5/8 in. for 5/8-in. drywall. Fine-thread drywall screws are designed to hang drywall on steel studs.

11. True. The higher the number, the thinner the metal.

12. False. Actually, paint manufacturers have to plan for their paint possibly freezing during shipping, so paint can

survive a few freeze/thaw cycles. Let frozen paint thaw and stir it. If it looks normal, go ahead and use it. But if it looks like cottage cheese, forget it. Ideally, paint should be stored at controlled room temperatures.

13. (A & B) Use only the coolant specified in your owner's manual. If you use a universal coolant and experience a cooling system failure, the manufacturer or extended warranty company can refuse to pay for the repair and may even void the warranty on future cooling system failures. Carmakers formulate their coolant to be compatible with the metal, plastic and rubber used in the car's radiator, heater core, hoses, tubing, seals and gaskets.

14. (C) It's not really surprising that the yard and garden account for 40 percent of all home eye injuries (and 20 percent are related to home repairs and power tools). Chain saws, lawn mowers and string trimmers all throw debris at high velocity. Plus, it's super easy to get poked in the eye with sticks or low-hanging branches. By the way, it's estimated that a full 90 percent of all eye injuries would be avoided if we all wore safety glasses when needed—duh!

15. False. For most homes, most of the time, duct cleaning is unnecessary. It's really only called for if ducts are polluted with excessive dust, debris or mold. A home that has been uninhabited and has become a haven for rodents is also a good candidate for duct cleaning.

Rebuild a water softener

Before we jump into rebuilding your existing water softener, you should ask yourself whether it's worth putting money into an older unit. Older units waste salt and water: They use a daily timer and recharge after a set number of days whether the resin is depleted or not. Newer models recharge only when absolutely necessary, so they can save quite a bit over their life span.

When a water softener fails, the symptoms are hard water, frequent regeneration cycles and excessive salt usage, brine tank overflow or resin beads clogging your faucet aerators.

Most softener problems are caused by worn or clogged parts in the control head or a salt bridge in the brine tank. We'll explain how to check for brine tank issues and show you how to completely rebuild the popular Autotrol control head, which is installed on about half of all water softeners sold by water professionals. So if your water softener looks like this one, read on. However, if you have an older water softener and the rebuild doesn't fix the problem, you won't have wasted your time because you may have to replace the resin bed as well. Enter "water softener" in the search box at familyhandyman.com to find that fix.

You'll need a T-50 "star" bit (\$6 at sears.com) to remove the access covers, along with small flat-blade and Phillips screwdrivers, and needle-nose and regular pliers. The entire rebuild takes less than an hour.

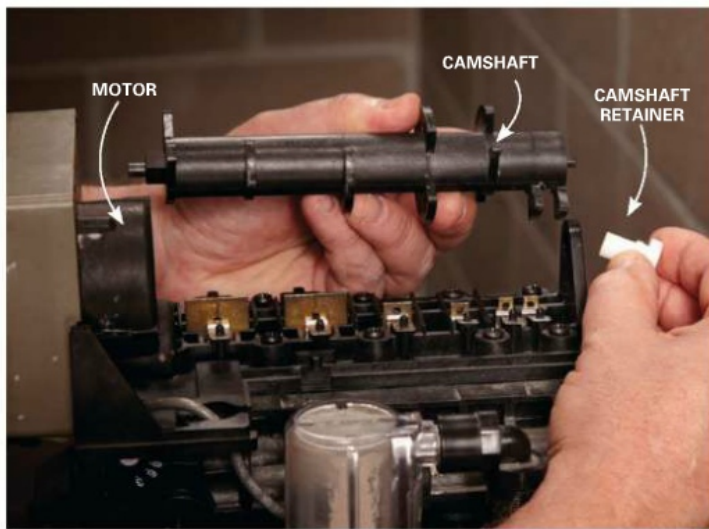
Start with a salt bridge and motor test

It doesn't make sense to rebuild a control head if the problem is just a bad motor or



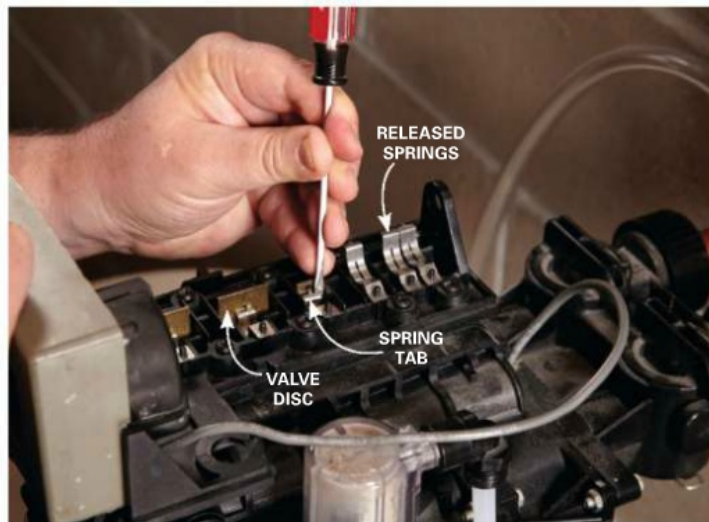
a salt bridge in the brine tank. So check those first. Jam a broom handle into the salt tank. If it hits a hard obstruction before reaching the bottom (or the salt shelf), you probably have a salt bridge. If so, scoop out the loose salt, and then break up the solidified salt by plunging a broom handle through the bridge, and refill the brine tank with salt.

Next, put the softener into manual regeneration mode and check for water flow at the floor drain. If water flows into the drain, that confirms the motor is working. However, if there's no flow, check the camshaft to see if it's engaged with the motor. If it is, check for power at the motor with a voltmeter. If the motor has power but doesn't turn the camshaft,



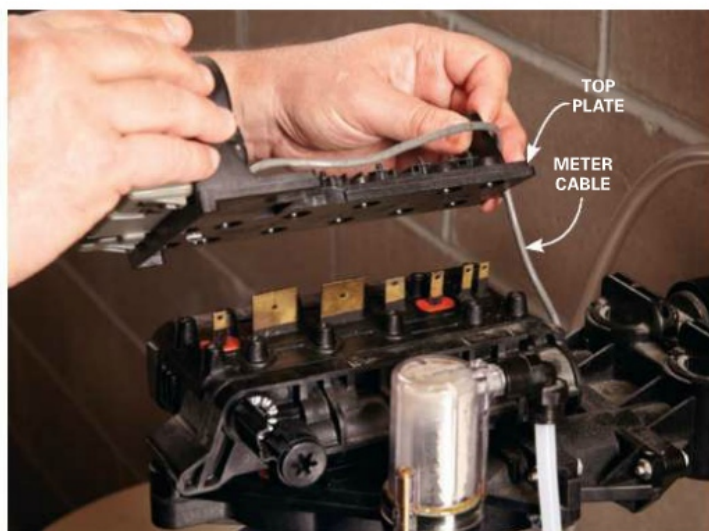
1 REMOVE THE CAMSHAFT

Unscrew the cam lock or rotate the cam lock lever and lift up on the rear end of the camshaft. Pull it out of the motor and set it aside.



2 DISENGAGE THE SPRINGS

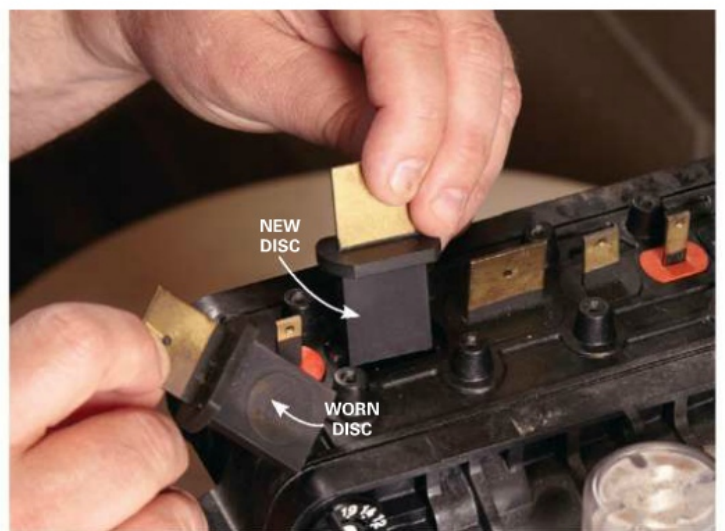
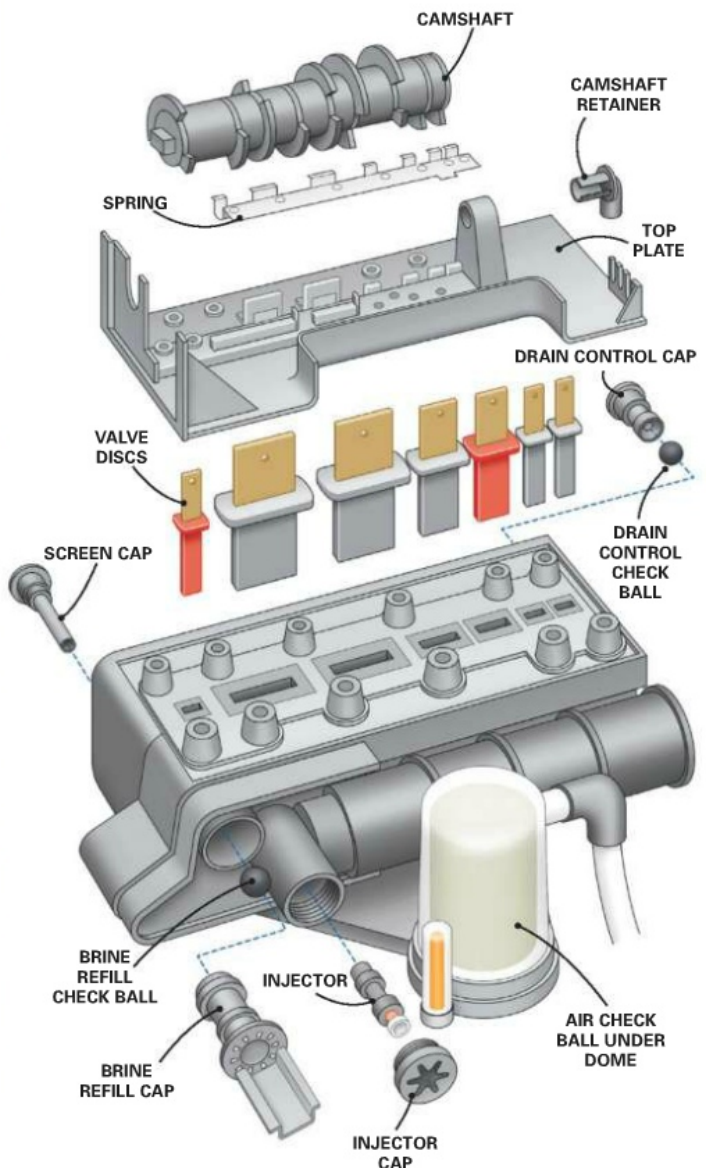
Slide a small flat-blade screwdriver under the spring and pry the tab out of the valve disc. Then pop the spring up.



3 REMOVE TOP PLATE

Unscrew 12 retaining screws. Then lift the top plate straight up. Disengage the meter cable (if equipped) and set the plate on top of the bypass valves.

Figure A
Water softener control head



4 INSTALL NEW VALVE DISCS

Yank the old valve discs straight up. Then insert the matching replacement discs (no lube needed). Press the rubber portion of each disc into the valve body until it's flush.



5 REPLACE THE INJECTOR

Unscrew the injector cap with the T-50 star bit. Then grab the injector with needle-nose pliers and yank it out, noting its direction. Clean out any debris and push in the new injector so it faces into the control head. Reinstall the cap and tighten until snug.

replace the motor. Once the motor is replaced, continue testing.

Identify your model and get the parts

Control head manufacturers never list their brand name or model number on their products, so you'll have to decipher that information by appearance. Softenerparts.com shows photos of all the most common brands and models. That's how we identified this Autotrol No. 255 unit.

If you're willing to disassemble the unit and check the condition of each part, you can save some money by ordering just what you need. Rather than do the job twice, we opted for a complete rebuild kit for \$84. To order the correct parts, you'll also need the diameter of the resin tank.

Close the bypass and remove the top plate

Turn the softener shutoff valves to the bypass position and start a manual regeneration to relieve internal pressure. Next, remove the camshaft (**Photo 1**) and disengage the valve disc springs (**Photo 2**). Then remove the retaining screws and the top plate (**Photo 3**).

Swap in the new parts

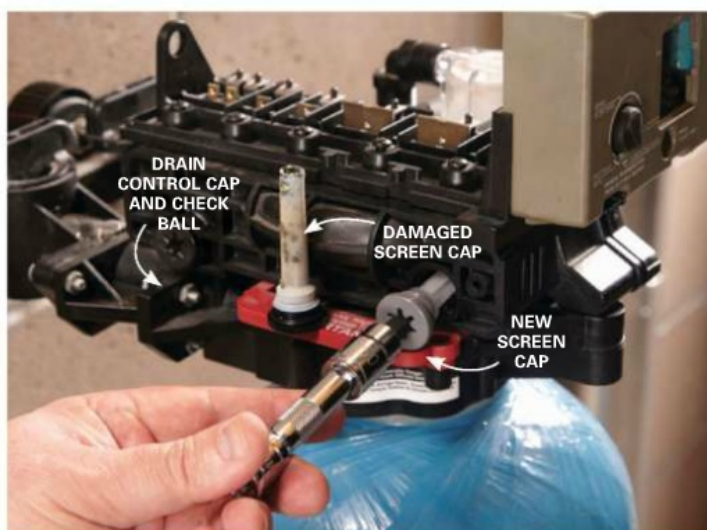
Replace the worn valve discs with the new ones from the kit (**Photo 4**). Then remove the injector cap and injector (**Photo 5**). Replace the brine refill check ball (**Photo 6**). Next, remove and check the screen cap (**Photo 7**). Replace the drain control check ball following the same procedure as for the brine refill check ball. Unscrew the clear plastic dome and replace the air check ball.

Reassemble by lining up the top cover directly over the valve discs. Lower it and lift the springs out of the way. Install the top plate screws and pop the spring tabs into the holes in the valve discs. Reinstall the cam. Turn the bypass valves to the service position and perform a manual regeneration to purge air out of the control head. Then enjoy the soft water.



6 REPLACE THE BRINE REFILL CHECK BALL

Grab the brine refill control cap with pliers and unscrew. Smack the control head with the palm of your hand to knock out the rubber check ball. Clean any debris and install the new check ball. Reinstall the control cap.



7 CLEAN OR REPLACE SCREEN CAP

Unscrew the screen cap and check its condition. Replace if the screen is damaged or permanently clogged.



REBUILD A FLECK CONTROL HEAD

Fleck is another common brand. If your control head looks like the one shown here, read how to rebuild it in the July/Aug. '11 issue or search for "water softener" at familyhandyman.com.

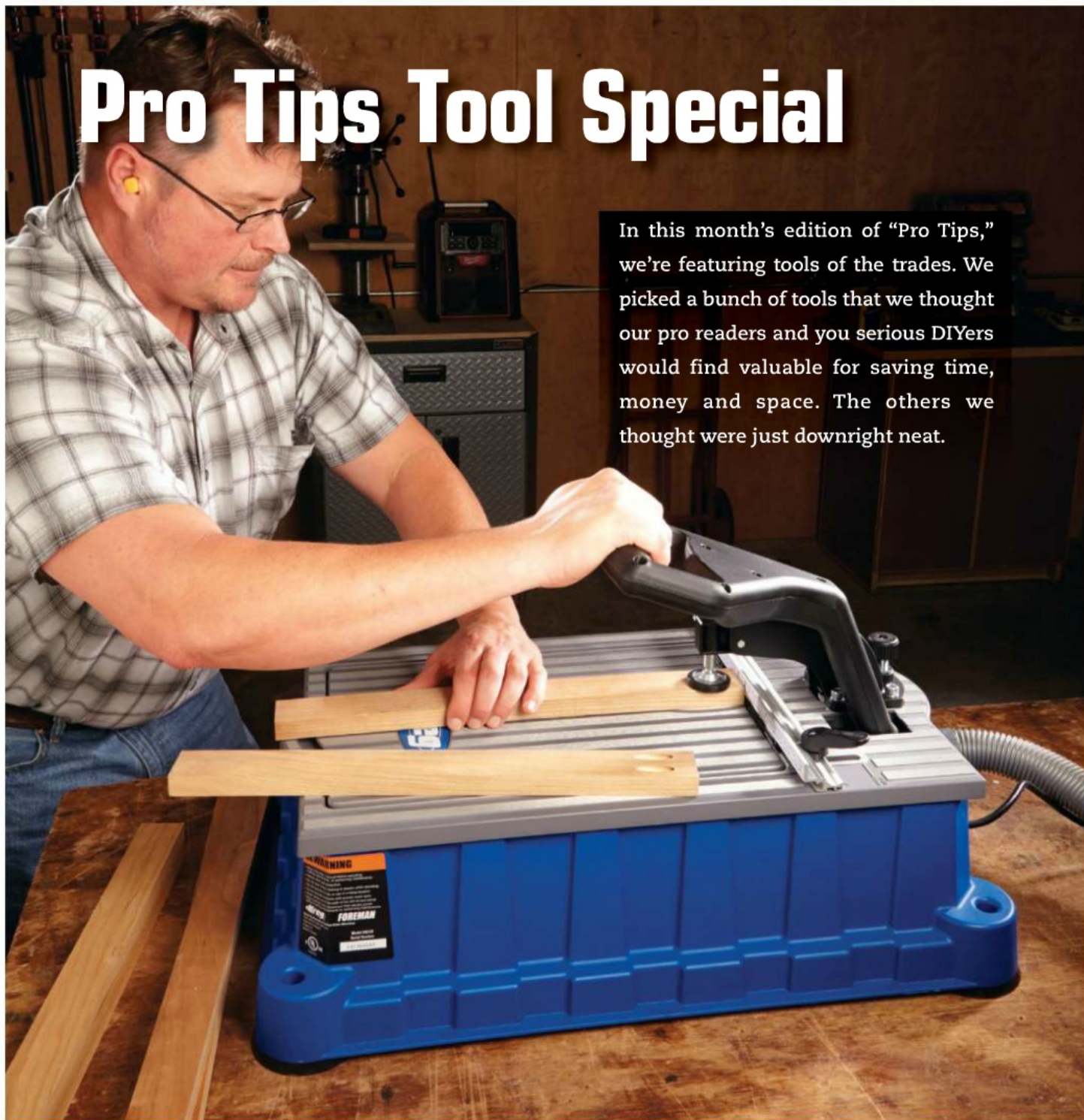
PRO tips

BY MARK PETERSEN

editors@thefamilyhandyman.com

Pro Tips Tool Special

In this month's edition of "Pro Tips," we're featuring tools of the trades. We picked a bunch of tools that we thought our pro readers and you serious DIYers would find valuable for saving time, money and space. The others we thought were just downright neat.



ART DIRECTION ELLEN THOMSON • PHOTOGRAPHY PAUL NELSON

WALLET-FRIENDLY, PRO-GRADE POCKET JIG

Kreg just introduced the new Foreman DB210, a pro-grade pocket-hole machine. It has all the features of previous Foremans but sells for half the price. The beauty of this class of pocket jigs is that indexing, clamping and boring all happen just by pulling down the handle. It's a very affordable version of the expensive dedicated pocket jigs found in cabinet shops.

The DB210 can bore three types of Kreg pocket holes: standard, micro and heavy duty, and it works on material 1/2 in. up to 1-1/2 in. thick. The vacuum attachment does a great job of collecting debris, which speeds up drilling and adds life to the bits. It's built solid like a shop machine should be but weighs only about 20 lbs., so it's a cinch to haul out to the job site. You woodworkers, cabinet builders and serious DIYers are going to love this tool. Buy one for \$400 at woodworking stores, online retailers or kregtool.com.



Speedy stapler

Hey, roofers, you all have a high-quality tackler-hammer-style stapler, but check this out. It's a pneumatic stapler from Spotnails that shoots the same Duo-Fast 50 series staples as your hammer tackler, and shoots them fast! It also holds more staples than your tackler (more than 2-1/2 full clips). But the best feature of this gun may be the absence of a staple retainer clip. (Who hasn't rummaged around a bush looking for a dropped clip?) Since your compressor and hoses are out already, this gun might be worth a try. Buy a Spotnails BSA1116AF T-50 at tool stores or at amazon.com for \$160.



HANG IT UP ALREADY

When you're working alone, it's not easy to have to measure, mark or position lumber while holding a gun with one hand and using the other hand to prevent falling off a ladder. Some framing guns have factory-installed rafter hooks, but you can still upgrade your favorite framer with a Sky Hook from Gunook Products. The hook mounts just behind the air nipple. You may need to buy a 3/8-in. to 1/4-in. NPT Bushing to install the hook depending on the type of gun you own. The Sky Hook is light and durable, and you can get one at pro tool stores or online at gunook.com for \$23.



Stop wasting foam

You can't beat spray foam for sealing around windows and doors or sealing large gaps and cracks in old house walls, foundations and attics, but how often have you run a can empty when you were so close to being finished? And how disappointing is it to use a partial can, knowing you'll have to throw the rest away? If you're a regular spray foam user, it might be time to step up to a foam dispensing gun.

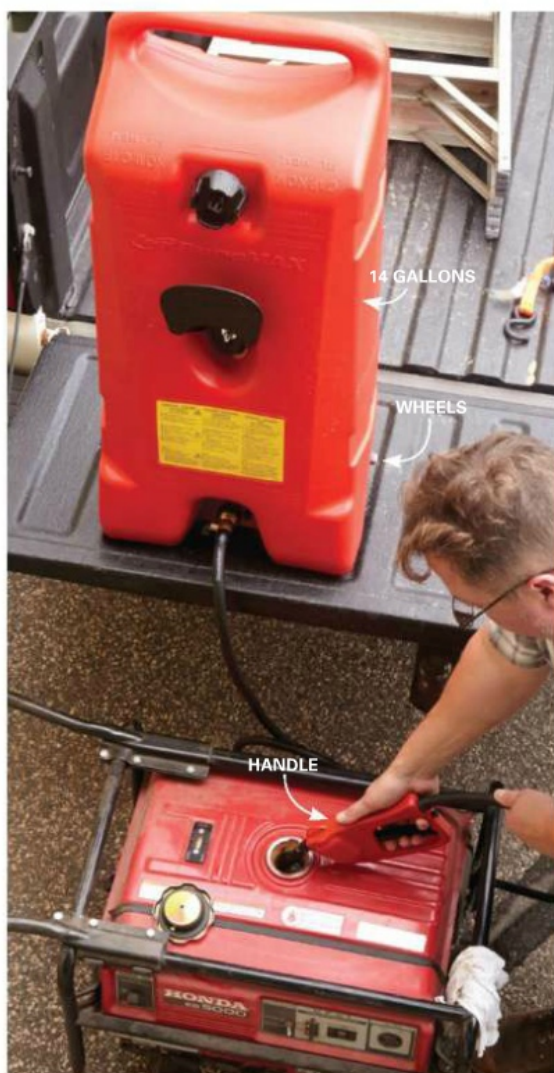
A dispensing gun allows you to save foam if the job requires less than a full can. Once the job is finished, just set the gun aside until the next time you need it. Leave the can on the gun if you know it will be used in less than 30 days, or pull the can off, cap it and then clean out the gun with cleaning solution. Besides saving you money on foam, the dispensing gun provides much greater control because you're not working with a flimsy straw, and the trigger can be adjusted with a turning setscrew to control the rate of flow—nice! At home centers, the cost for the setup shown here is \$13 for the window and door foam, \$15 for the gaps and cracks foam, and \$8 for the cleaning solution. Gun prices range from \$50 to \$140.



NO-HASSLE REFUELING

If your work relies on small engines, you know what a pain refueling can be. Make your life a little easier by investing in a DuraMax gas tank by Flo n' go. It has a gravity-fed hose, which means no lugging around a 50-lb. gas can, and the triggered handle reduces the chance of spills. Best of all, the 14-gallon tank reduces trips to the gas station, which will, appropriately enough, save you money on gas.

The wheels in the back make the tank easy to maneuver, but make sure you do a good job of securing it before you hit the road. The DuraMax gas tank costs about \$120. Check out the store locator at flo-n-go.com. If you have a bed liner, you should always set the tank on the ground before filling to avoid sparks caused by static electricity.



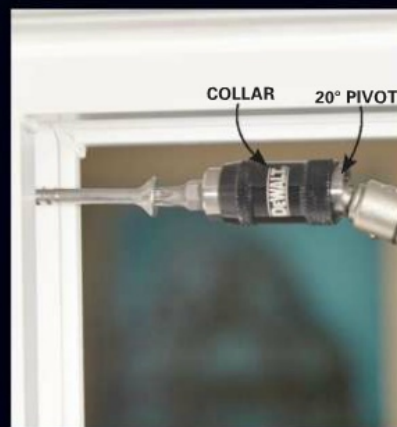
Heavy-duty scissors

This little guy has been a huge hit here at *The Family Handyman*. It's a new 7-in. tool from Wiss that cuts just about anything. The handles fit nicely in the hand, and it doesn't take up much room in the pouch. It's called a WTT "scissors," but we've cut banding straps, aluminum fascia and even a steel stud—try that with a regular scissors! Available at home centers and hardware stores, it costs about \$15.



Cool new chalk lines

DeWalt recently jumped into the chalk line business, and these two stood out for obvious reasons. The big honker has a string as thick as a bootlace and holds 1 lb. of chalk, perfect for long lines, and a lot of them. The tiny fellow is the smallest we've seen while still having a 3-to-1 rewind ratio, just the thing for you pros who only snap an occasional line and don't want to sacrifice a lot of space in your pouch. The small DWHT47257L comes with a 30-ft. line and costs \$7, including a bottle of blue chalk. The big DWHT47252 has a 100-ft. line and costs \$30. Find them both at The Home Depot.



A bit holder for close quarters

The new DeWalt Pivot Holder pivots at a 20-degree angle, which works great for driving screws in tight places. This is especially handy when you can't have a spinning drill chuck marring up a surface like a door frame. The collar spins independent of the holder and can be hand-guided to keep the bit stable. Slide the collar down and you've got a regular bit holder. You'll find them at home centers for about \$11.

Smaller holes are better

A 23-gauge pinner works great at securing small components in place while the glue sets up, and it leaves behind an almost invisible hole. But with no real head, the pins don't have a lot of holding power on their own. That's why the 18-gauge brad nailer has been the workhorse in trim carpentry for the past few decades: The brads hold well and leave only a small (but noticeable) hole.

Senco decided to fill the gap between these two tools with the FinishPro 21LXP, a 21-gauge pinner. It shoots pins with a smaller head than an 18-gauge brad but large enough to keep things in their place. This is a nifty tool when you're working with clear-grain wood where nail holes are more noticeable. You can buy one at a pro tool store or go to senco.com to find a retailer. It costs \$249.



Pliers with a bite

If removing stripped screws is part of your job description, then get a grip, and buy yourself a pair of VamPLIERS. The jaws have vertical and horizontal serrations designed to grasp small, round screw heads. This thing really does latch onto screws way better than standard pliers, and all of the editors here at *TFH* were impressed with the high-quality feel of the tool. Get one for \$35 at amazon.com.

A hose by any other name...

Not all polyurethane hoses are created equal, and they don't get any better than the Flexeel made by Coilhose Pneumatics. Flexeel air hoses are super lightweight, which is nice when you're hanging off a 20-ft. ladder.

They're extremely flexible and have a non-marring surface, so they won't scuff up walls or furniture when you're dragging them around a customer's house. These hoses also have a slight tackiness to them so they don't slide

off a roof as readily as others. The pro tool store near us stopped selling other brands once they introduced these into the showroom. A 25-ft. hose without fittings costs \$16 at flexeelstore.com or about \$20 at pro tool stores.





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Space-saving tiling tools

Hart Tool Co. has a new take on notched trowels and grout floats for you tilers: an interchangeable handle system. In addition to the box and handle, the kit shown here comes with three stainless square-notched blades, one stainless V-notched blade and a gum rubber float. That's five tools taking up the same space as two traditional tools!

The interchangeable handle does more than just save space: It's adjustable along the spine so you can set it wherever feels most comfortable, or slide the handle back to extend the reach for those hard-to-access areas. And you lefties will appreciate that the blades are reversible. This Quick-Tatch Combo Kit costs \$40 at The Home Depot. A three-piece kit without a box is also available for \$20. You can get replacements when they wear out (for less than \$10).



Cuts faster than corded

Pipefitters, steelworkers and electricians have been using portable band saws for a while now, but Milwaukee just introduced a cordless model with the new brushless technology that converts energy into power more efficiently. The result is the M18 FUEL Deep Cut Band Saw (2729-22). Milwaukee has tested this saw against its own corded models (which are among the best in the industry) and claims this battery-powered tool out-sawed its corded competition. The saw has a 5-in. x 5-in. capacity and weighs 15 lbs. You'll find it at pro tool stores or at online retailers for about \$400.



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ALL-TERRAIN SCAFFOLDING

Ladders, sawhorses and scaffolding are difficult to set up on uneven ground. The process usually requires digging a hole or blocking up one or more legs to get them even "close" to level. The Bronco scaffold system thrives on uneven ground. It has three legs that easily adjust to accommodate most terrain conditions. They reach a height of 5 ft., fully extended, and are rated for 600 lbs. a pair. When you're not using them, they fold flat for easy storage and transport. They cost \$135 each. Check out the store locator at reechcraft.com.

WHEEL OF FORTUNE

Most jobs start with an estimate, and precise measuring is crucial to a profitable job. Sometimes a tape measure is just not the right tool, especially outdoors. When bidding on a fence or retaining wall, you're not going to impress customers by having them hold the end of your tape measure—and first impressions are important.

Use a measuring wheel like this one from Calculated Industries. This lightweight Wheel Master Classic 12 has a 12-1/2-in. wheel and folds in half for easy storage. It also has a sturdy flip-down kickstand. Call 1-800-854-8075 to find a dealer near you. It cost \$80 and you'll get a free carrying case if you call before Dec. 1, 2014.



CAR + garage

BY RICK MUSCOPLAT

editors@thefamilyhandyman.com

Upgrade your shop tools

By now you might think you've got all the primary tools you need for wrenching in the garage. So we figure it's about

time you rewarded yourself with tools and accessories that make the mechanical part of your life a bit easier. Here's a cool

assortment of gadgets to help you get into (and out of) tight places as well as lift, store, start, hold and tighten.



ART DIRECTION VERN JOHNSON • PHOTOGRAPHY TOM FENENGA

A FLOOR JACK THAT CAN LIFT IN TWO PLACES

If you do your own repair work on a newer vehicle, you know you usually need two floor jacks. Ixnay on that! Just remove the saddle from your Pittsburgh 3-ton floor jack and replace it with this Pittsburgh cross-beam lifting accessory. Extend the arms and rotate the lift pads to meet a cross member. Then pump the handle and your vehicle is up in the air. The Pittsburgh 68052 3-ton aluminum floor jack with RapidPump, \$250, and the Pittsburgh 60762 cross-beam twin arm adapter, \$80, are both available at harborfreight.com.



Keep fasteners handy

How many hours have you spent looking for nuts, bolts, washers and other small parts spread willy-nilly around the garage? Quit wasting time! Just slap them onto a magnetized belt clip and they'll be there when it's time for reassembly. The belt clip, No. 310-994, is available for \$14 at magnogrip.com.



See what you're grabbing

Newer sockets come with large laser-etched size markings. But that's no reason to ditch your old sockets. Just clean them and slap on gas- and oil-resistant foil labels with easy-to-read color-coded sizes. A package of Chrome Foil Socket labels includes 60 labels in fractional and metric sizes and costs \$5 at mysiteforsoreeyes.com.



Mark before disassembly

Seasoned mechanics can disassemble and reassemble just about anything. Know how they do it? They mark each piece as they disassemble. That's where this inexpensive carbide-tipped scribe comes in (No. 88CM Carbide Tip Scriber With Magnet; \$8 at generaltools.com). Just scratch alignment marks or numbers or whatever you need on the parts as you remove them so you won't have to remember where they go when it's time for reassembly.

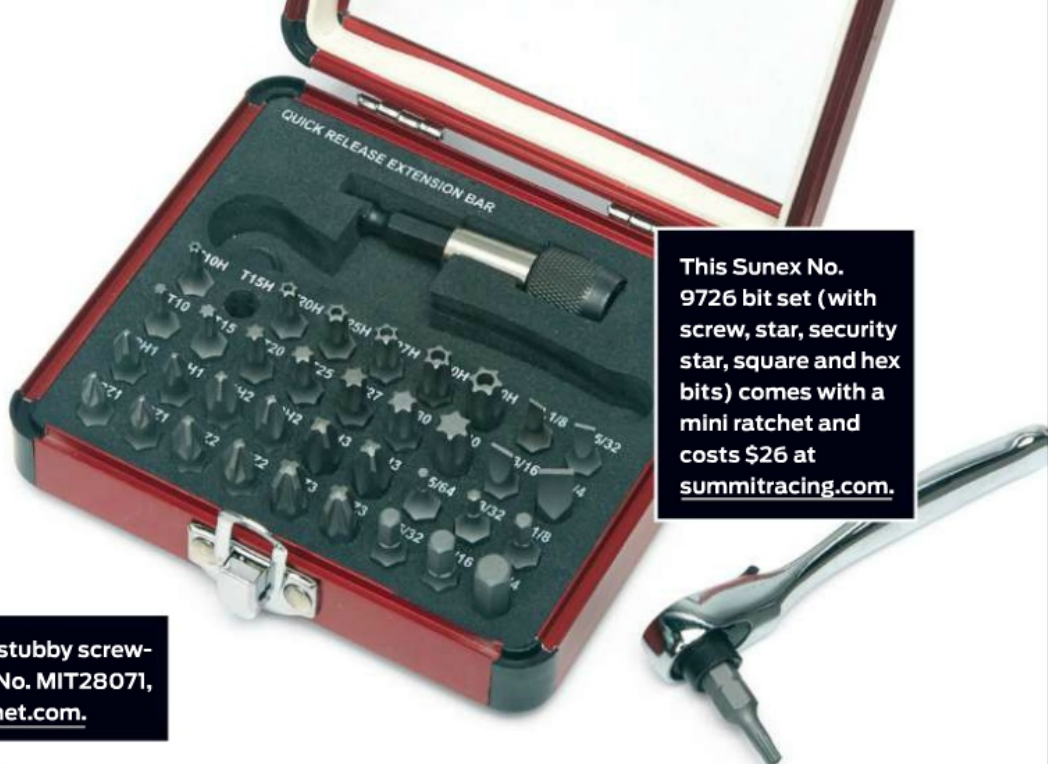


SOCKET SET IN A HANDLE

Keeping a small emergency socket set in the glove box of your car or boat is very prudent! This compact socket/ratchet combo does the job (Kobalt Xtreme Access Ratchet, item No. 568267; \$17 at lowes.com). Slide off the handle to find four splined sockets that cover the most common fractional and metric nuts and bolts. Then slide the handle back on and you're in business.

TOOLS FOR TIGHT PLACES

When you're removing fasteners in tight places, you need all the help you can get. One look at some of our favorites will tell you everything you need to know.



This Sunex No. 9726 bit set (with screw, star, security star, square and hex bits) comes with a mini ratchet and costs \$26 at summitracing.com.



This set of four stubby screwdrivers, Tekton No. MIT28071, is \$3 at toolplanet.com.



The Gimbal 1/4-in.-drive ratchet by GearWrench, No. 81027, is \$15 at jbtoolsales.com.



The Square Drive Magnetic Flex Driver, Lisle No. 63190, \$11, is available at jbtoolsales.com.



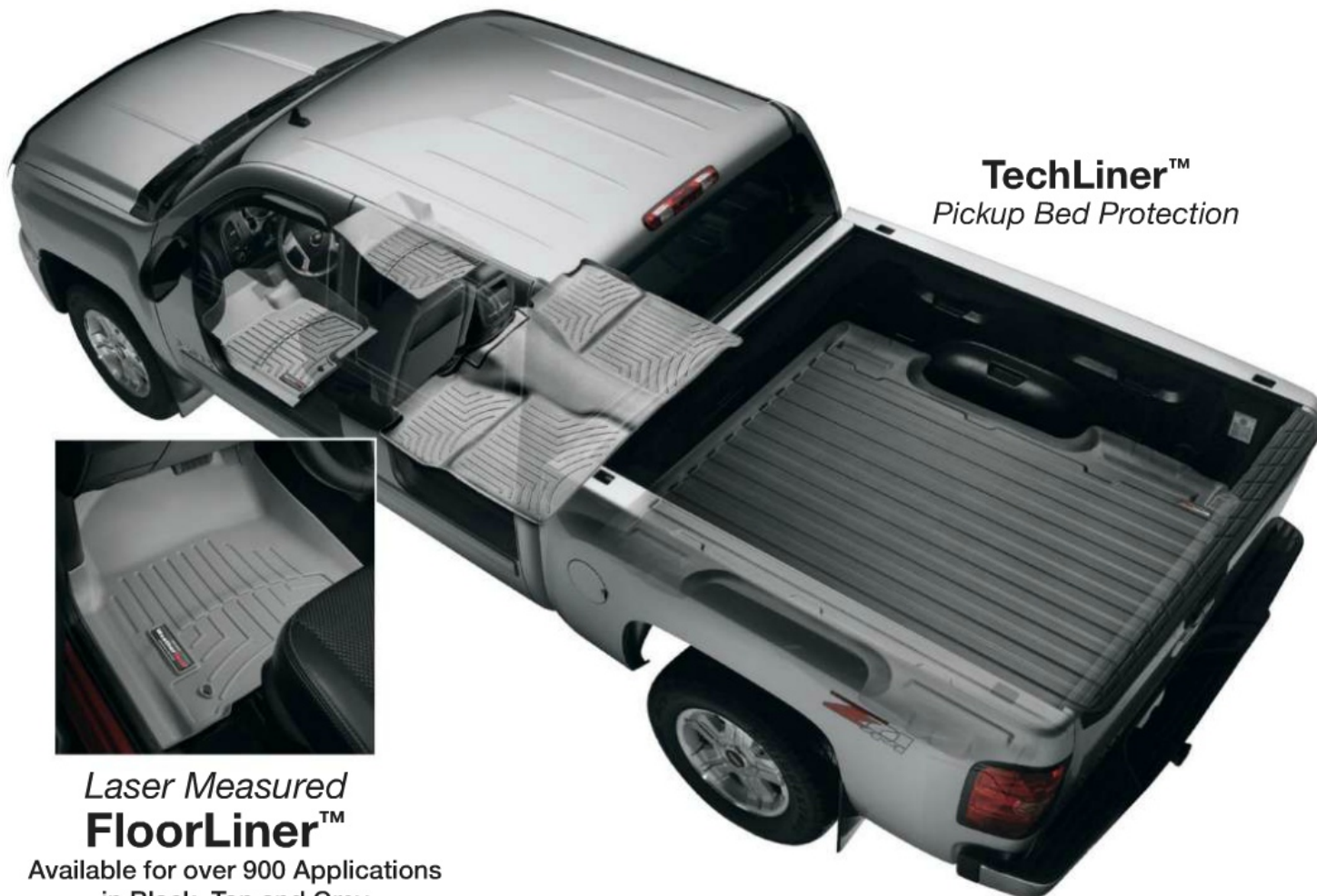
This 3-Piece Mini Ratchet Set, Lisle No. 61200, \$24, is available at tooldiscounter.com.



This ratcheting screwdriver set and offset attachment, the FastDriver 300, model No. WPK2603, is \$30 at parts-express.com.

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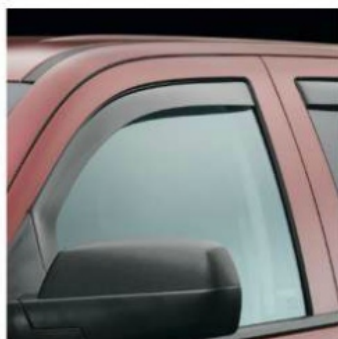
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Top Ten TIPS

BY JEFF GORTON

editors@thefamilyhandyman.com

Driving screws

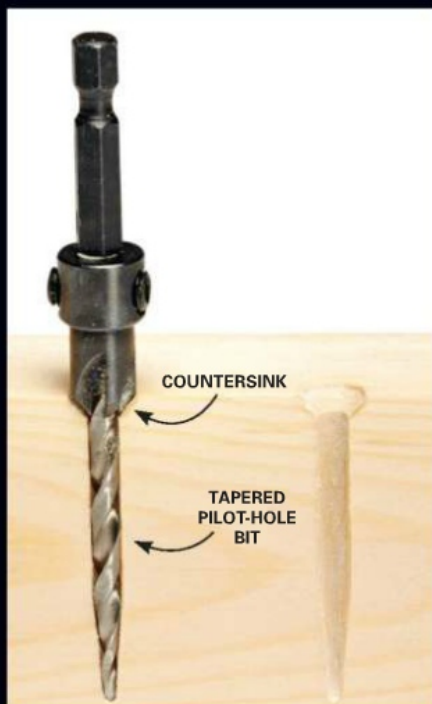
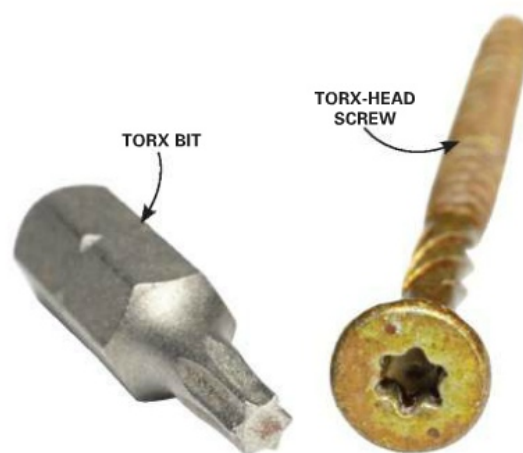
For such a simple task, it's surprising how many things can go wrong when you drive screws. Stripped screw heads, split board ends and broken screws are just a few common problems. We'll show you how you can avoid all the frustration just by using the right screws and a few special tools.

ART DIRECTION ELLEN THOMSON • PHOTOGRAPHY TOM FENENGA and PAUL NELSON

1 Look for Torx-head screws

Torx-head screws have been common on automobiles for a long time, but now they're available for general construction use too. Star-shaped Torx bits fit tightly into the star-shaped recess in the head of the screw, providing a firm grip that rarely slips out or strips the screw head. It's easier to drive these screws because you don't have to press down as hard to maintain good bit contact. Plus, most Torx-head screws are premium-quality fasteners available with other features like self-drilling points, self-setting heads and corrosion-resistant coatings.

Torx-head screws require star-shaped bits that are labeled with a "T" followed by a number. Some screw packages include a driver bit, but if yours doesn't, check the package to see what size is required. If there's a downside to Torx-head screws, it's the price. You wouldn't want to use them to hang drywall.



2 Buy a set of countersink bits

Drilling a pilot hole for the screw and then creating a recess, or countersink, for the screw head is standard practice on cabinets and furniture projects. The pilot hole bit creates a hole that reduces friction to make screw driving easier, and the countersink allows you to set the screw head flush with or below the surface. With a set of countersink bits like these, you can complete both operations in one step. Even though they cost a little more, we prefer the combination pilot/countersink bits with the tapered drill bit. Tapered countersink bits cost about \$11 each, or you can buy a set of the three most common sizes for \$21.



3 Use a magnetic bit-tip holder

If you're new to driving screws with a drill, you may not know the many benefits of using a magnetic bit holder. First, and most obvious, is that it holds any driver bit with a standard 1/4-in. hex-shape base, making it super quick and easy to change bits. But there are other advantages too. The bit holder extends the length of the bit, making it much easier to get into tight spots. The magnet in the bit holder magnetizes the tip, allowing you to hold ferrous-metal screws in place on the end of the bit for easier driving (**top photo**). And if you buy a bit holder with a sleeve, like the one shown here, you can use it to hold long screws upright as you drive them in (**bottom photo**). Look for a magnetic bit holder that's at least 3 in. long and includes the sleeve (about \$6 for a top-quality bit holder).

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4 Tack first, then drive screws

It can be frustrating and time consuming to try to hold parts in place while you drill pilot holes and drive screws. Here's a trick that solves the problem and speeds up assembly too. Tack the parts together first with a brad or finish nail gun. That enables you to align the parts with one hand while you tack with the other. Once everything is held in the right position, it's simple to drill the pilot/countersink holes and drive the screws.

5 Get a cordless impact driver

Nothing beats impact drivers for driving screws easily. Impact drivers (\$60 to \$150 for the cordless version) combine hammer-like blows with rotation to apply plenty of torque to the screw head. The hammer action means you don't have to press down hard to keep the bit in contact with the screw. This allows you to drive screws one-handed in spots that would be hard to reach otherwise. But beyond this advantage, the extra torque makes it simpler to drive any screw, especially long ones.





6 Trim-head screws aren't just for trim

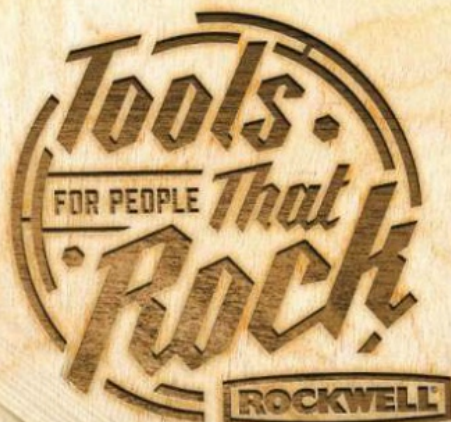
Trim-head screws are slender screws with very small heads. Originally they were designed to attach wood trim to walls built with steel studs. But now you can go to the fasteners department in any home center or full-service hardware store and find trim-head screws in several colors, long lengths, corrosion-resistant finishes or stainless steel, which make them perfect replacements for nails in many situations. When sunk slightly below the surface, the heads on these screws are small enough to be covered easily with wood filler or color putty.

Here we're using trim-head screws to connect a fence rail to a post. But you can also use them in place of galvanized casing nails to install exterior doors and windows, or to attach exterior trim. Trim-head screws have several advantages over nails. They hold better and are easier to install in tight areas. Plus, if you're not an experienced carpenter, they allow you to install trim without worrying about denting it with an errant hammer blow. Keep a supply of trim-head screws of various lengths on hand and you'll be surprised how often you reach for them rather than nails.



7 Ditch the lag screws

The next time you build a deck, gazebo or fence that requires lag screws, consider using a modern version instead. These new structural screws are just as strong but skinnier, and they have specially designed tips and threads to make it easier to drive them in. You don't even have to drill pilot holes. And you can drive them with a standard drill, impact driver or strong cordless drill. They cost a little more than conventional lag screws. But if you've got better things to do than waste time with lag screws, they're worth every cent.



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8 Install drywall with special tools

If you're considering driving drywall screws with a cordless drill and a regular Phillips-bit driver, don't. Drywall screws have to be driven to exactly the right depth. Too shallow, and you won't be able to cover them with joint compound; too deep, and you'll break through the paper face of the drywall, which will give you ugly drywall screw pops later. It's nearly impossible to drive screws quickly and accurately without special tools.

Here are your choices. If you only have a few sheets of drywall to hang, you can buy a special tip for your cordless drill that limits the depth you can drive the screw. These drywall screw tips cost just a few dollars and work well if you're careful. A better option is a driver drill that's built to drive drywall screws. You can buy a time-saving auto-feed version (\$100 to \$300; center photo below) that uses special collated screws, or a dedicated drywall screw gun (\$70 to \$200; left) that drives regular drywall screws. Both versions have adjustable nosepieces for precise depth control. If you only need the tool for one drywall job, consider renting one for a day or two.



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9 Center starter holes with a self-centering bit

When you drill pilot holes for hardware mounting screws, it's tough to keep the hole centered. That's where self-centering pilot bits come in handy. Just choose the right size self-centering bit, press the nose into the hole in the hardware, and the cone-shape guide keeps the bit centered while you drill the hole. A set

of bits that work for screw sizes Nos. 6, 8 and 10 costs about \$24.





10 Adjust the clutch to avoid stripped screw heads

Most cordless drills come equipped with a clutch. If your drill has a clutch, try it out the next time you use the drill to drive small brass or aluminum screws that are easily damaged. Start with the lightest clutch setting and increase it until the proper driving depth is reached. The clutch will prevent you from accidentally stripping the screw heads.



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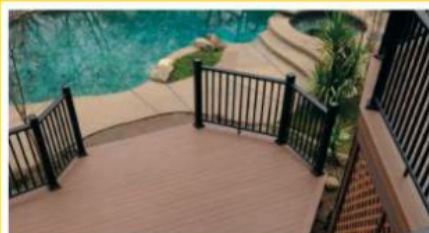
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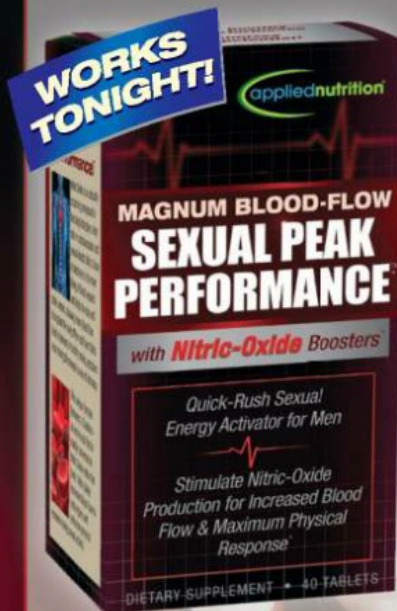
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SHOE RENEW

While painting my garage recently, I needed to stir the primer. I removed the lid on the primer can and started to stir with an attachment chucked into my drill. Everything was going smoothly until I switched the drill to "high." In an instant, I saw a third of the can of paint rise to the brim and then fly over the top of the can onto the grass and soak my tennis shoes. The only silver lining here was that my shoes were nearing the end of their useful life and the paint was water based, so cleanup was mostly successful!



Joshua T. Timm



Plywood launcher

On a recent trip to the Habitat for Humanity ReStore, I got some sheets of used plywood for a home improvement project. I loaded them onto the roof rack of my minivan and roped it side to side. After driving awhile and feeling comfortable with my fastening job, I came to an intersection as the light was turning yellow and did what I always do—I hit the brakes. That sent the plywood sheets sailing clean through the intersection at about 30 mph! An elderly couple waiting for the light to turn green (but out of harm's way) had a good laugh at my expense, but fortunately, no one was hurt. After reloading the sheets onto the rack, I made sure to rope them front to back as well as side to side.

Larry R. Treffry

Our iPad edition has twice as many Great Goofs! It's available in the App Store.



Grounded by a ladder

While examining my brick chimney, I noticed that it needed tuck-pointing here and there to replace missing mortar. After talking about it with my much younger, handy neighbor, he volunteered to handle the repair.

Wanting to help as much as I could, I got out my ladder and proceeded to set it up. I lifted it toward the roof edge, but as I was backing it up to get it positioned just right, my heels hit a garden timber. My feet stopped, but the rest of my body and the ladder, which I held in both hands, kept right on going until I fell over backward—with the ladder on top of me! I sprained a wrist and fractured the other. So much for helping. Next time I'll save a lot of money just by staying clear of the job!

Dennis A. Miller

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