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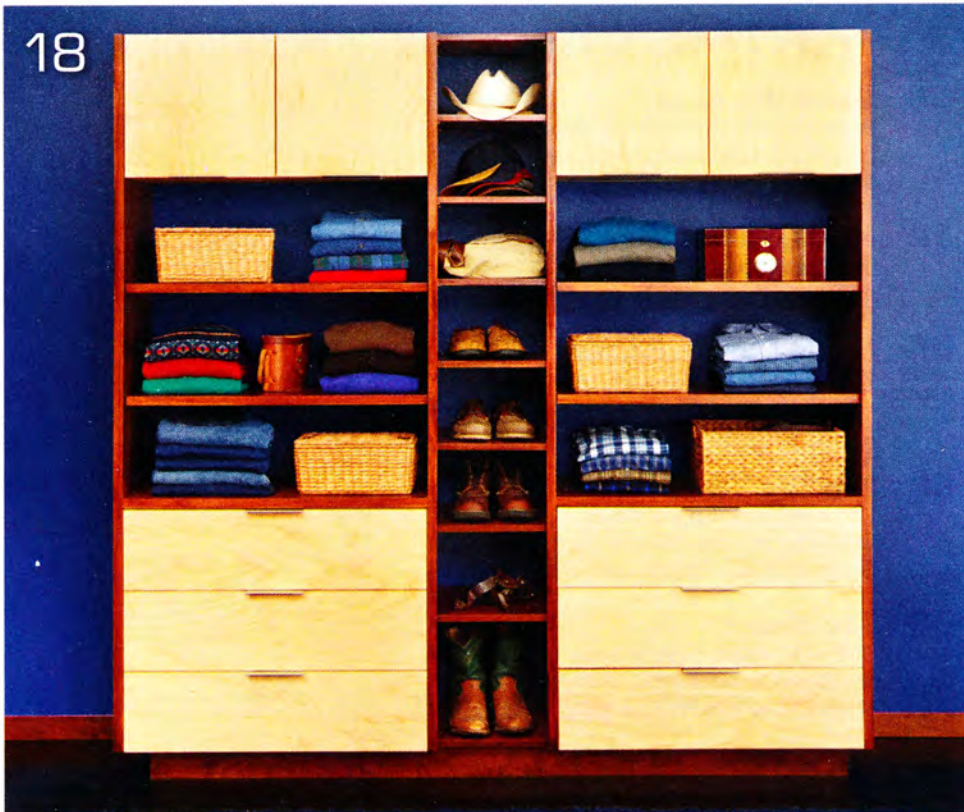
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GOT A DIY QUESTION?

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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We pay \$100 for Handy Hints®, Great Goofs® and Wordless Workshop™ submissions that we publish. Please include a photo of yourself from the shoulders up. Submit your original contribution, along with photos or sketches, by e-mail to:
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handyhints@thefamilyhandyman.com
greatgoofs@thefamilyhandyman.com
wordless@thefamilyhandyman.com

or mail to: The Family Handyman
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Field Editors contribute ideas and experience to every issue of *The Family Handyman*. To join our crew of volunteers, e-mail us: Iwant2beaFieldEditor@familyhandyman.com





Humalog KwikPen is prefilled with mealtime insulin, so it goes just about anywhere you go.

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Who should use Humalog?

Humalog is used to treat people with diabetes for the control of high blood sugar.

IMPORTANT SAFETY INFORMATION FOR HUMALOG

What is the most important information I should know about Humalog?

- Do not change the insulin you use without talking to your healthcare provider. Doses of oral antidiabetic medicines may also need to change if your insulin is changed.
- Test your blood sugar levels as your healthcare provider instructs.
- When used in a pump, do not mix Humalog with any other insulin or liquid.

Who should not take Humalog?

- Do not take Humalog if your blood sugar is too low (hypoglycemia) or if you are allergic to insulin lispro or any of the ingredients in Humalog.

Before using Humalog, what should I tell my healthcare providers?

Tell your healthcare providers:

- About all of your medical conditions, including liver, kidney, or heart problems.
- If you are pregnant or breastfeeding.
- About all the medicines you take, including prescription (especially ones commonly called TZDs [thiazolidinediones]) and non-prescription medicines, vitamins, and herbal supplements.

How should I use Humalog?

- Humalog is a rapid-acting insulin. Take Humalog within fifteen minutes before eating or right after eating a meal.
- Always make sure you receive the correct type of Humalog from the pharmacy.
- Do not use Humalog if it is cloudy, colored, or has solid particles or clumps in it.
- Do not mix Humalog with insulin other than NPH when using a syringe. Do not mix or dilute Humalog when used in a pump.
- Inject Humalog under your skin (subcutaneously). Never inject into a vein or muscle. Change (rotate) your injection site with each dose. Make sure you inject the correct insulin and dose.
- Depending on the type of diabetes you have, you may need to take Humalog with a longer-acting insulin or with oral antidiabetic medicines.
- If you forget to take your dose of Humalog, your blood sugar may go too high (hyperglycemia), which can lead to serious problems like loss of consciousness (passing out), coma, or even death.
- Your insulin dose may need to change because of illness, stress, other medicines you take, change in diet, or change in physical activity or exercise.

What are the possible side effects of Humalog?

- Low blood sugar is the most common side effect. There are many causes of low blood sugar, including taking too much Humalog. It is important to treat it quickly. You can treat mild to moderate low blood sugar by drinking or eating a quick source of sugar right away.

If severe, low blood sugar can cause unconsciousness (passing out), seizures, and death. Symptoms may be different for each person. Be sure to talk to your healthcare provider about low blood sugar symptoms and treatment.

- Severe life-threatening allergic reactions (whole-body reactions) can happen. Get medical help right away if you develop a rash over your whole body, have trouble breathing, have a fast heartbeat, or are sweating.
- Reactions at the injection site (local allergic reaction) such as redness, swelling, and itching can happen. If you keep having skin reactions or they are serious, talk to your healthcare provider. Do not inject insulin into a skin area that is red, swollen, or itchy.
- Skin may thicken or pit at the injection site (lipodystrophy). Do not inject insulin into skin with these types of changes.
- Other side effects include low potassium in your blood (hypokalemia), and weight gain.
- Serious side effects can include:
 - swelling of your hands and feet
 - heart failure when taking certain pills called thiazolidinediones or "TZDs" with Humalog. This may occur in some people even if they have not had heart problems before. Tell your healthcare provider if you have shortness of breath, swelling of your ankles or feet, or sudden weight gain, which may be symptoms of heart failure. Your healthcare provider may need to adjust or stop your treatment with TZDs or Humalog.
- These are not all of the possible side effects. Ask your healthcare providers for more information or for medical advice about side effects.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

How should I store Humalog?

- Unopened Humalog should be stored in a refrigerator and can be used until the expiration date on the carton or label.
- Humalog should be stored away from light and heat. Do not use insulin if it has been frozen.
- Opened vials should be kept at room temperature or in a refrigerator. Opened cartridges or prefilled pens should be kept at room temperature.
- Once opened, Humalog vials, prefilled pens, and cartridges should be thrown away after 28 days.

Humalog is available by prescription only.

For additional information, talk to your healthcare providers and please see Information for Patients on following pages. Please see Instructions for Use that accompany your pen.

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insulin lispro injection, USP (rDNA origin)
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Lilly

**Information for Patients about
Humalog®
(insulin lispro injection, USP [rDNA origin])**

Read the "Patient Information" that comes with Humalog (HU-ma-log) before you start using it and each time you get a refill. There may be new information. This leaflet does not take the place of talking with your healthcare provider about your diabetes or treatment. If you have questions about Humalog or diabetes, talk with your healthcare provider.

What is Humalog?

Humalog is an injectable, rapid-acting, man-made insulin. It is used to treat people with diabetes for the control of high blood sugar. You should take Humalog within fifteen minutes before eating or right after eating a meal.

What is the most important information I should know about Humalog?

- Do not change the insulin you use without talking to your healthcare provider. Doses of oral diabetes medicines may also need to change if your insulin is changed.
- You must test your blood sugar levels as your healthcare provider instructs.
- If you forget to take your dose of Humalog, your blood sugar may go too high (hyperglycemia). If high blood sugar is not treated it can lead to serious problems like loss of consciousness (passing out), coma, or even death.
- Always make sure you receive the correct type of Humalog from the pharmacy. Do not use Humalog if it is cloudy, colored, or has solid particles or clumps in it.
- Do not mix Humalog with insulin other than NPH when using a syringe.
- Inject Humalog under your skin (subcutaneously). Never inject into a vein or muscle. Change (rotate) your injection site with each dose. Make sure you inject the correct insulin and dose.
- When used in a pump, do not mix Humalog with any other insulin or liquid. The infusion set should be changed at least every 3 days. The Humalog in the pump reservoir should be changed at least every 7 days even if you have not used all of the Humalog.
- Taking other medicines known as TZDs (thiazolidinediones) with Humalog may cause heart failure. Tell your healthcare provider if you have any new or worse symptoms of heart failure, such as shortness of breath, swelling of your ankles or feet, or sudden weight gain.

Who should NOT take Humalog?

Do not take Humalog:

- if your blood sugar is too low (hypoglycemia).
- before checking with your healthcare provider regarding any allergies you may have to its ingredients.

What are the possible side effects of Humalog?

- Low blood sugar (hypoglycemia). There are many causes of low blood sugar, including taking too much Humalog. It is important to treat it quickly. You can treat mild to moderate low blood sugar by drinking or eating a quick source of sugar right away. Low blood sugar may affect your ability to drive or operate machinery. Severe low blood sugar can cause unconsciousness (passing out), seizures, and death. Symptoms may be different for each person. Be sure to talk to your healthcare provider about low blood sugar symptoms and treatment.
- Severe life-threatening allergic reactions. Get medical help right away if you develop a rash over your whole body, have trouble breathing, have a fast heartbeat, or are sweating.
- Reactions at the injection site such as redness, swelling, and itching. If you keep having skin reactions or they are serious, talk to your healthcare provider. Do not inject insulin into a skin area that is red, swollen, or itchy.
- Skin may thicken or pit at the injection site (lipodystrophy). Do not inject insulin into this type of skin.
- Other side effects include swelling of your hands and feet, low potassium in your blood (hypokalemia), and weight gain.
- Taking other medicines known as TZDs (thiazolidinediones) with Humalog may cause heart failure in some people.
- These are not all of the possible side effects. Ask your healthcare providers for more information.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

What should I tell my doctor before using Humalog?

- About all of your medical conditions, including liver, kidney, or heart problems.
- About all the medicines you take, including prescription (especially ones commonly called TZDs (thiazolidinediones)) and non-prescription medicines, vitamins, and herbal supplements.
- If you are pregnant or breastfeeding.

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- Unopened Humalog should be stored in a refrigerator and can be used until the expiration date.
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- Once opened, Humalog vials, prefilled pens, and cartridges should be thrown away after 28 days.

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Additional information can be found at www.Humalog.com

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STUFF we love

BY TRAVIS LARSON

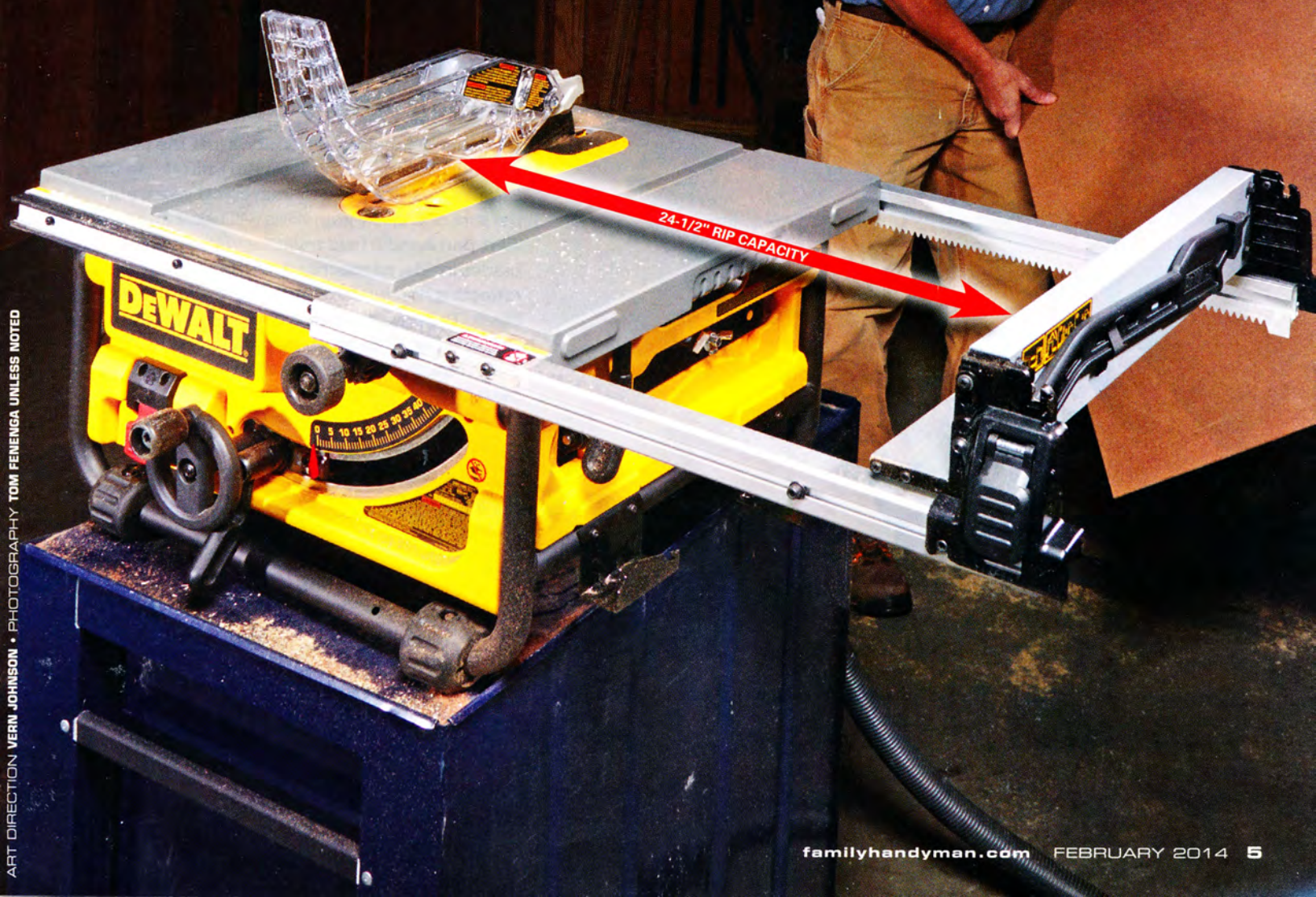
editors@thefamilyhandyman.com

GREAT SAW FOR SMALL SHOPS

If you do your woodworking in a small space or need a table saw to haul around, we recommend the new DeWalt Compact Jobsite saw, model 7480. It's got full-size guts (a 10-in. blade and a 15-amp motor) in an incredibly tiny but sturdy package. It weighs only 45 lbs. and has comfortable handles so you can carry with both hands or just one. And the rip fence is sweet! It has a rack-and-pinion arrangement, so it's smooth, easy to move and stays adjusted (just like the fences on the larger DeWalt saws).

Most important, though, is that this year the saw's rip capacity has been increased to 24-1/2 in., so you can cut to the middle of a sheet of plywood. Other features include the now-standard "super guards," which work so much better than those of a few years ago. A dust port and sealed case make it easy to collect dust using a shop vacuum. And the saw comes with a decent carbide blade.

OK, the 7480 isn't perfect. It's noisy, it doesn't have a blade brake or soft-start, and you can't outfit it with a dado blade. But fitted with an extension table and a tool-actuated shop vacuum, it could be the heart of a full-featured compact shop. After the cutting's done, up it goes onto a shelf. You can find the DeWalt DWE7480 saw for about \$380 at home centers and online.



Show those nails who's boss

One of my favorite tools for demolition is the Crescent Code Red Nail Pulling Pliers. It's a pliers-like nail puller that can pull anything as long as you have at least 1/8 in. sticking out to grab on to. I bought it when we remodeled our basement and had to pull out the hundreds of finish nails that held the pine bead board on the ceiling.

For really tough nails like coated framing nails, you can put a pipe over the handle for additional leverage. It will pull large screws that way as well, but it makes a mess of the board. I've even used it to pull concrete screws out of concrete when the head was stripped or rusted. You can get one for about \$20 at some home centers or online.

Chris Phelps, Field Editor



Fixed-blade utility knife

Sometimes timeless simplicity is just the ticket. Take for example the Classic 199 utility knife from Stanley. I've had mine for maybe 40 years, and I'm sure one of my grandkids will use it after me. Two-part handle held together with a screw, extra blades inside, no mechanisms, no plastic, no retracting mechanism—nothing to wear out or break. The newer versions have a handy hole in the end to hang on a nail. I wouldn't carry this tool in a tool belt, but for the workshop it's darn near perfect. And for 8 bucks, you can hardly go wrong.

Ken Collier, Editor in Chief

HOME TECH

Connect more gadgets to your TV

To cut costs, many TV manufacturers are putting fewer HDMI input ports on the back of the set. That's a problem if you have a cable or satellite box and you want to add more devices like a Blu-Ray DVD player, a Roku streaming device and a game console.

The solution: Add an HDMI switch box. This isn't the least expensive model (No. 5312 4x2 True Matrix; \$58 at monoprice.com), but it provides all the best features for a reasonable price. Plug up to four HDMI devices into the switch box and output them to your TV using as many as two HDMI cables. Then sit back, open a bag of chips and switch from one device to another with the switch box remote control.



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DIY WORK WEAR



My favorite shop apron

After more than 30 years of woodworking, I've gone through my share of shop aprons. None have performed better than my Fire Hose Bib Apron from Duluth Trading Co. I wear an apron not only to keep my clothes clean but also to keep my essential marking and measuring tools at hand. Any apron with pockets can perform these two tasks. The features that set the Fire Hose Bib Apron apart for me are the three mesh bottom pouches that let sawdust flow right through, and the straps that take the apron weight off my neck and put it squarely on my shoulders.

The pouches are where I keep my tape measure, square and hearing protectors. Behind those pouches, there are additional pouches where I keep less-used tools. I really appreciate the breast pocket design with pencil sleeves that keep my two pencils and a 6-in. steel rule in place even when I stoop to pick something up off the floor.

The fire hose canvas is durable and features more pockets than I need. It won't last forever, but I'll be buying another when this one wears out. You can get one for \$29 at duluthtrading.com.

Dave Munkittrick, Contributing Editor



LIGHT, QUIET AND POWERFUL

When a tree falls on my property, I don't usually hear it, but I still have to clean up the mess. A tree recently fell on my outbuilding, and I wasn't crazy about the idea of climbing around on a slippery metal roof with a running chain saw in my hand. To play it safe, I got my hands on Oregon's CS250 14-in. cordless model. Talk about "the right tool for the job." It was light, quiet and had plenty of power.

I've never used a saw with more aggressive teeth, but of course Oregon does know a thing or two about chain saw chains, since it's been making them for more than 65 years. The battery had plenty of juice to dismember my problem tree, and the onboard sharpening ensured the saw was ready to go the next time the wind blew. The saw, with one battery and a charger, costs about \$395 at online retailers, or you can find a store near you at oregonpowernow.com. Oregon also makes a string trimmer and hedge shears that run on the same battery platform.

Mark Petersen, Contributing Editor



Drill-in-just-about-anything bits

I tried it, and it's true. The Multi-Material drill bits from Irwin actually do drill almost everything. For me that included marble, steel, aluminum, wood, concrete and brick. I used an ordinary cordless drill, but the bits are rated for rotary or hammer drills, which would really speed up drilling masonry or stone. So if you want to have only one drill bit set in the toolbox but still be ready for anything, invest \$40 for the 10-bit set (No. 1792772) or \$20 for the five-bit set (No. 4935078) at amazon.com.

Travis Larson, Senior Editor

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UTILITY KNIFE PENCIL

I came across a new tool awhile back and gave it a permanent home in my tool belt. It's a bit of an improvement on one of the oldest standbys, the pencil.

The Accutrax pencil blade is a carbon-reinforced graphite blade that takes the place of the original blade in any utility knife. It makes the same width line all day long and never needs sharpening. It's really great for making straight, even lines along a Speed Square to mark framing lumber or to lay out stair jacks with a framing square. It hasn't replaced the pencil in my pouch, but it definitely does equal time. You can find Accutrax pencil blades at home centers for about \$12 for a set of three or order them online at amazon.com.

David Radtke, Contributing Editor



Rethreader in a can

Murphy's Law says you're going to strip the threads on the last fastener of your latest repair project. Sure, you can get a larger fastener and drill and tap your way to the finish line. Or, you can clean the botched threads and fill the hole with 3M's new Bondo Metal Fill No. 00256 (\$15 at home centers and auto parts stores).

Just jam the fastener into the filled hole and let the filler harden. Presto! Instant threads. Or you can completely fill the hole and start fresh by drilling and tapping new threads. Keep a can on hand, or wear it around your neck to ward off visits from Mr. Murphy.

New tool... old batteries

If you're currently running the Makita 18V LXT platform, your cordless tool outlook just got even brighter. Makita's new 18V X2 LXT 1-in. rotary hammer drill combines two LXT 18-volt lithium-ion batteries to achieve 36 volts. That means you don't have to add a 36-volt battery to the bucket full of 18-volt batteries you already own, and you won't have additional chargers cluttering up your truck.

The model HRH01ZX2 accepts SDS-PLUS bits, has an anti-vibe handle and includes LED lights to illuminate the work area. The motor delivers 0-1,200 rpm, 0-4,800 bpm and plenty of power to blast all sorts of holes in 50-year-old concrete. Expect to pay about \$340 for the tool only. Go to makitatools.com/shop to find a dealer near you. You might also want to check out Makita's 18V X2 LXT cordless chain saw.





WIPE-ON STAIN

If you're intimidated by staining or just hate dealing with the mess, Minwax has a solution: Wood Finishing Cloths. They come in five colors and include a clear finish, presoaked into the cloths.

Open the bag, grab a cloth, wipe it on and wipe off the excess with a clean cloth. If you'd like a deeper color, you can recoat your project in one hour. Both the stain and the finish are water-based, so fumes aren't a problem and cleanup is with soap and water. A package of eight costs about \$9 at home centers.



HANG ON, BROTHER!

This couldn't be easier: Hang the Trash-Ease trash bag holder (about \$15) on the edge of any work surface and push scraps from the workbench, picnic table or craft bench right into the bag. Even works on a pickup tailgate or just about anything else that has a lip. Find a dealer at trashease.com.

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NEW SYSTEM

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FROM OUR READERS

handyhints@thefamilyhandyman.com

GREASED LIGHTING

We've all been there: A lightbulb breaks away from its base when you try to remove it, and then you're stuck with broken glass and a tough-to-get-out bulb base. You can solve this problem easily (especially in damp areas like porches and bathrooms) with Bulb & Socket Lube. I just smear a dab on the threads of the base and tighten the bulb as usual. Look for Bulb & Socket Lube at your home center or hardware store.



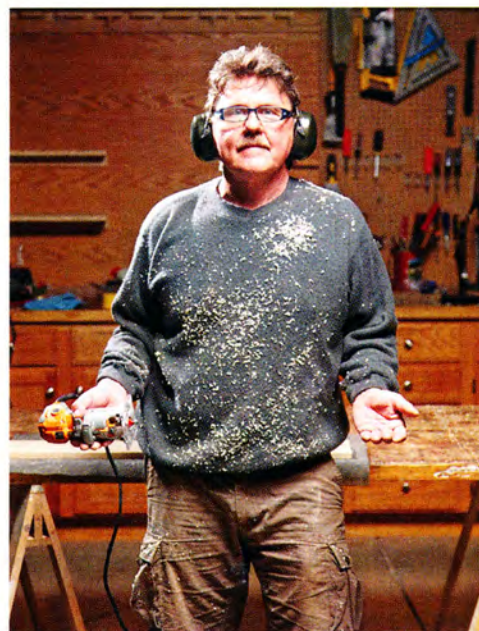
H. Ed Chapman Sr.



Spray-foam super tube

While sealing tiny openings along my home's foundation, I was having a bugger of a time positioning my inverted spray foam can just right. That's when I decided to look around the shop for a solution. I found some 1/4-in. clear flexible tubing that I'd picked up at the hardware store. It fit on the end of the nozzle nice and tight after I ran it under hot water to soften and expand it slightly. Once it was outfitted, I could hold the can in a comfortable spot and then move the end of the tubing to fill the cracks with foam.

Glenn Copeland



No sawdust in the house!

We have this policy at home that I can't come into the house from the garage with as much as a speck of sawdust on my clothes (somehow my vote didn't count!). To keep the dust off my clothes, I picked up a pair of nylon athletic pants and a nylon rain jacket at a thrift store. I just slip them over my street clothes when I'm kicking up dust in the shop—nothing sticks to them. My clothes seem to be lasting longer too!

David Radtke





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MAGNET IN A BAG

Cleaning up metal shavings around my drill press almost always got me a metal sliver or two. Using a magnet works fine, but it's no fun to get all those shavings off the magnet. Then I decided to put the magnet inside a plastic bag that was turned inside out. Now I can attract the shavings to the bag, seal it and pull it free, and throw them away without touching a single shaving.

Robert Black Sr.



Hinge face-lift

Awhile back we remodeled our kitchen and decided to replace our chrome fixtures with new ones that had a copper finish. This meant new matching knobs for the doors and drawers as well. When it came to the hinges, it was difficult to find new ones that fit the old mounting holes, and the choices were expensive. We decided that painting the hinges metallic copper would work since they weren't handled every day and wouldn't show wear. We removed the hinges, rubbed them with steel wool and sprayed them with metallic paint and a clear coat. The hinges look great, at a fraction of the cost of new.



Dennis Badertscher



A QUICK AND CONVENIENT WAY TO FILL YOUR PRESCRIPTION ONLINE.

If you have a prescription for VIAGRA (*sildenafil citrate*), there's VIAGRA home delivery.

A place where you can fill your prescription online and have it shipped at no additional cost,* straight to your door.

**GET STARTED NOW
AT VIAGRA.COM**

Please see Important Safety Information on adjacent page.

For more information go to viagra.com or call 1-888-484-2472 (1-888-4VIAGRA).



The blue diamond tablet shape is a registered trademark of Pfizer Inc.

*There might be an additional shipping and handling surcharge to ship orders outside the 48 contiguous states.

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YOU NEVER BACK DOWN FROM A CHALLENGE. AND YOU WOULDN'T START NOW.

YOU'VE REACHED THE AGE WHERE GIVING UP ISN'T WHO YOU ARE.

So if you're like millions of men who have some degree of erectile dysfunction (ED), talk to your doctor. Ask about VIAGRA (*sildenafil citrate*), and see if America's most prescribed ED treatment is right for you. 20 million men already have.

For more information go to viagra.com or call 1-888-484-2472 (1-888-4VIAGRA).

THIS IS THE AGE OF TAKING ACTION. VIAGRA.

VIAGRA is prescription medication to treat erectile dysfunction (ED).

IMPORTANT SAFETY INFORMATION BELOW.

Do not take VIAGRA if you take nitrates, often prescribed for chest pain, as this may cause a sudden, unsafe drop in blood pressure.

Discuss your general health status with your doctor to ensure that you are healthy enough to engage in sexual activity. If you experience chest pain, nausea, or any other discomforts during sex, seek immediate medical help.

In the rare event of an erection lasting more than 4 hours, seek immediate medical help to avoid long-term injury.

If you are older than age 65, or have serious liver or kidney problems, your doctor may start you at the lowest dose (25 mg) of VIAGRA. If you are taking protease inhibitors, such as for the treatment of HIV, your doctor may recommend a 25-mg dose and may limit you to a maximum single dose of 25 mg of VIAGRA in a 48-hour period. If you have prostate problems or high blood pressure for which you take medicines called alpha blockers, your doctor may start you on a lower dose of VIAGRA.

In rare instances, men taking PDE5 inhibitors (oral erectile dysfunction medicines, including VIAGRA) reported a sudden decrease or loss of vision or hearing. If you experience sudden decrease or loss of vision or hearing, stop taking PDE5 inhibitors, including VIAGRA, and call a doctor right away.

VIAGRA should not be used with other ED treatments. VIAGRA should not be used with REVATIO or other products containing sildenafil.

VIAGRA does not protect against sexually transmitted diseases, including HIV.

The most common side effects of VIAGRA are headache, facial flushing, and upset stomach. Less commonly, bluish vision, blurred vision, or sensitivity to light may briefly occur.

Please see Important Facts for VIAGRA on the following page or visit viagra.com for full prescribing information.

You are encouraged to report negative side effects of prescription drugs to the FDA.
Visit www.FDA.gov/medwatch or call 1-800-FDA-1088.

The blue diamond tablet shape is a registered trademark of Pfizer Inc.

 **VIAGRA**[®]
(*sildenafil citrate*) tablets

IMPORTANT FACTS



VIAGRA[®]
(sildenafil citrate) tablets

(vi-AG-rah)

IMPORTANT SAFETY INFORMATION ABOUT VIAGRA

Never take VIAGRA if you take any medicines with nitrates. This includes nitroglycerin. Your blood pressure could drop quickly. It could fall to an unsafe or life-threatening level.

ABOUT ERECTILE DYSFUNCTION (ED)

Erectile dysfunction means a man cannot get or keep an erection. Health problems, injury, or side effects of drugs may cause ED. The cause may not be known.

ABOUT VIAGRA

VIAGRA is used to treat ED in men. When you want to have sex, VIAGRA can help you get and keep an erection when you are sexually excited. You cannot get an erection just by taking the pill. Only your doctor can prescribe VIAGRA.

VIAGRA does not cure ED.

VIAGRA does not protect you or your partner from STDs (sexually transmitted diseases) or HIV. You will need to use a condom.

VIAGRA is not a hormone or an aphrodisiac.

WHO IS VIAGRA FOR?

Who should take VIAGRA?

Men who have ED and whose heart is healthy enough for sex.

Who should NOT take VIAGRA?

- If you ever take medicines with nitrates:
 - Medicines that treat chest pain (angina), such as nitroglycerin or isosorbide mononitrate or dinitrate
- If you use some street drugs, such as "poppers" (amyl nitrate or nitrite)
- If you are allergic to anything in the VIAGRA tablet

BEFORE YOU START VIAGRA

Tell your doctor if you have or ever had:

- Heart attack, abnormal heartbeats, or stroke
- Heart problems, such as heart failure, chest pain, angina, or aortic valve narrowing
- Low or high blood pressure
- Severe vision loss
- An eye condition called retinitis pigmentosa
- Kidney or liver problems
- Blood problems, such as sickle cell anemia or leukemia
- A deformed penis, Peyronie's disease, or an erection that lasted more than 4 hours
- Stomach ulcers or any kind of bleeding problems

Tell your doctor about all your medicines. Include over-the-counter medicines, vitamins, and herbal products. Tell your doctor if you take or use:

- Medicines called alpha-blockers to treat high blood pressure or prostate problems. Your blood pressure could suddenly get too low. You could get dizzy or faint. Your doctor may start you on a lower dose of VIAGRA.
- Medicines called protease inhibitors for HIV. Your doctor may prescribe a 25 mg dose. Your doctor may limit VIAGRA to 25 mg in a 48-hour period.
- Other methods to cause erections. These include pills, injections, implants, or pumps.
- A medicine called REVATIO. VIAGRA should not be used with REVATIO as REVATIO contains sildenafil, the same medicine found in VIAGRA.

POSSIBLE SIDE EFFECTS OF VIAGRA

Side effects are mostly mild to moderate. They usually go away after a few hours. Some of these are more likely to happen with higher doses.

The most common side effects are:

- Headache
- Feeling flushed
- Upset stomach

Less common side effects are:

- Trouble telling blue and green apart or seeing a blue tinge on things
- Eyes being more sensitive to light
- Blurred vision

Rarely, a small number of men taking VIAGRA have reported these serious events:

- Having an erection that lasts more than 4 hours. If the erection is not treated right away, long-term loss of potency could occur.
- Sudden decrease or loss of sight in one or both eyes. We do not know if these events are caused by VIAGRA and medicines like it or caused by other factors. They may be caused by conditions like high blood pressure or diabetes. If you have sudden vision changes, stop using VIAGRA and all medicines like it. Call your doctor right away.
- Sudden decrease or loss of hearing. We do not know if these events are caused by VIAGRA and medicines like it or caused by other factors. If you have sudden hearing changes, stop using VIAGRA and all medicines like it. Call your doctor right away.
- Heart attack, stroke, irregular heartbeats, and death. We do not know whether these events are caused by VIAGRA or caused by other factors. Most of these happened in men who already had heart problems.

If you have any of these problems, stop VIAGRA. Call your doctor right away.

HOW TO TAKE VIAGRA

Do:

- Take VIAGRA only the way your doctor tells you. VIAGRA comes in 25 mg, 50 mg, and 100 mg tablets. Your doctor will tell you how much to take.
- If you are over 65 or have serious liver or kidney problems, your doctor may start you at the lowest dose (25 mg).
- Take VIAGRA about 1 hour before you want to have sex. VIAGRA starts to work in about 30 minutes when you are sexually excited. VIAGRA lasts up to 4 hours.

Don't:

- Do not take VIAGRA more than once a day.
- Do not take more VIAGRA than your doctor tells you. If you think you need more VIAGRA, talk with your doctor.
- Do not start or stop any other medicines before checking with your doctor.

NEED MORE INFORMATION?

- This is only a summary of important information. Ask your doctor or pharmacist for complete product information OR
- Go to www.viagra.com or call (888) 4-VIAGRA (484-2472).



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SLICK TABLE SAW

I find the best way to protect my cast-iron table saw top is to occasionally rub on a coat of paste wax. This gives me a nice, slick top for easier material feeding, and if I drip glue on the surface, it won't stick. It also helps prevent surface rust when the air is humid.

Jack Linden

Clever cord control

I've got a small kitchen and tangled cords drive me crazy! After the toaster and bread maker tumbled onto the floor while I was putting away the rice cooker, I finally had to take action. My solution was to buy Command Clear Medium Cord Clips (available at home centers and amazon.com). I attached one to each appliance so I could wrap the cord around the clip, effectively eliminating any cord disasters. The clips are inexpensive (about \$2 for six) and you can remove them without harming the paint or finish.

Kyle May



Fast fix for sticking drawers

The drawers in our dining room buffet stick badly. To remedy the problem, I grabbed a candle from one of the drawers and rubbed it along the bottom of the drawer and along the wood runner. Now they slide like new and almost as smoothly as our kitchen drawers with the fancy drawer glides.

Red Danske



READY REFERENCE

I save all my back issues of *The Family Handyman* magazine and love the projects and repair tips. The trouble is, I'm not always ready to do the project when the issue arrives. To make my favorite articles easy to find at a later date, I put a stick-on label on the cover and then add notes for easy reference when the time comes to do the job.

Willie Schreiber



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DIY TIP GENIUS

TRIPLE YOUR CLOSET SPACE



ART DIRECTION MARCIA ROEPKE • PHOTOGRAPHY TOM FEMENGA • TECHNICAL ART FRANK ROHRBACH III

Add extra clothes storage space to any room with these attractive cabinets

by Jeff Gorton
editors@thefamilyhandyman.com

It seems like no matter how much closet space you have, there's never quite enough. But building attractive clothes cabinets like these allows you to expand storage into your bedroom or a spare room and gain the extra space you need. You can build one storage tower or connect several together. Each tower consists of a drawer base, a wall cabinet with doors, and two side panels with holes for adjustable shelves. We'll show you how to build the cabinets and assemble the towers. And we'll also include details for adding a clothes hamper drawer, a pullout pants-hanging rack and shoe storage between the two towers.

Even though the style is simple, building these cabinets requires close attention to detail and accurate cuts. If you can cut plywood precisely and have the patience to carefully assemble the parts, you shouldn't have any trouble building this project.

We used 3/4-in. maple plywood for everything but the drawers and the backs of the cabinets. For these we used good-quality shop-grade plywood. We spent about \$50 per sheet for the maple plywood. You could substitute less expensive plywood for the cabinet boxes to save a little money.

WHAT IT TAKES

TIME: Two or three weekends

COST: \$400 per tower

SKILL:

Intermediate to advanced

TOOLS: Standard carpentry tools plus a table saw, miter saw, compressor and pin nailer, and a 35-mm Forstner bit

Tons of storage for all your clothes



The large, deep drawers hold sweaters and other bulky items. Full-extension ball-bearing slides allow easy access.

Jeff's closet solution

I live in a 100-year-old house with a few very small, overflowing closets. But we do have an extra room that's only for guests. I figured this would be a perfect place for more storage. So I designed this clothes-organizing system to fit along one wall of the extra room. And if we need more storage space, I can always build another tower.



The wall cabinet has space for extra bedding or off-season clothes.



The shoe shelves can store shoes, purses and hats, or small baskets for socks and underwear.

CUT AND PREPARE THE PLYWOOD

The most important step in the building process is cutting the parts accurately. Use the Cutting List and **Figure E** (p. 32) as a guide. Our plywood was a full 3/4 in. thick, and the sizes shown are for 3/4-in. plywood. If yours is slightly thinner, cut the shelves, doors and drawer parts after you've assembled the cabinet boxes so you can adjust the fit.

A stationary table saw with an accurate fence and outfeed tables would be ideal for this job. But you can get great results with a portable saw too. You'll need a top-quality blade

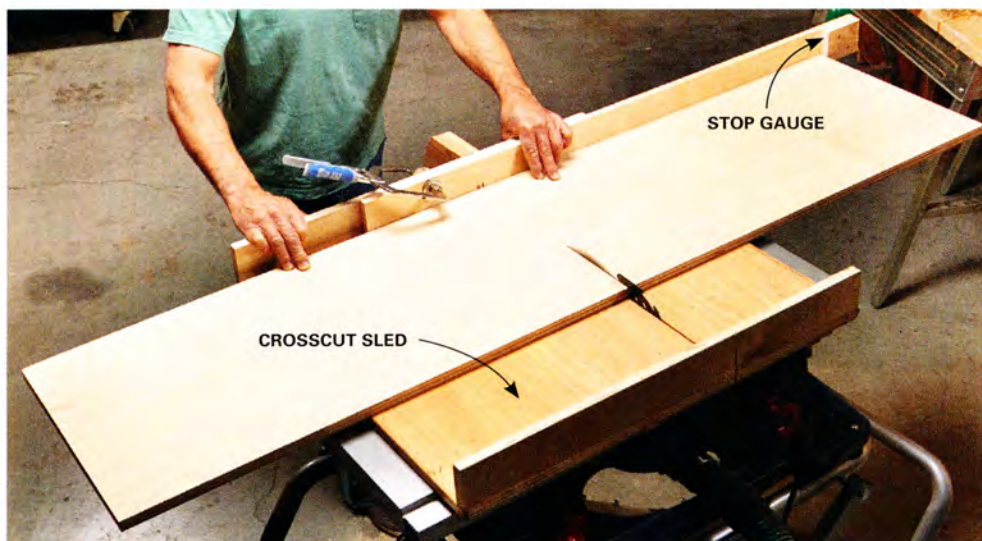
designed to crosscut plywood. We splurged on a 90-tooth 10-inch blade (\$60) and were amazed at the glass-smooth, splinter-free cuts we got.

After all the parts are cut, separate out the uprights and shelves that receive solid wood nosing. Then cover the raw plywood edges of the remaining 3/4-in. plywood parts with edge-banding veneer. For the cabinet boxes, you only need to cover the front edges. On the doors and drawer fronts, you'll want to cover all four edges.



1 RIP THE PLYWOOD

Round up a helper and rip the plywood sheets into strips according to Figure E on p. 32. Choose the best-looking plywood for the tall end panels because these are the most visible.



2 CROSSCUT THE PLYWOOD

A crosscutting sled is the best tool for accurately cutting the plywood strips to length. Take the time to build a sled if you don't have one. Clamp a stop to the crosscutting sled to cut same-size parts accurately.



3 COVER THE RAW PLYWOOD EDGES

Finish the edges of the cabinet parts and the shoe shelves with edge banding. We're using self-adhesive edge banding, but iron-on edge banding works well too. Center the edge banding and press or iron it on according to the manufacturer's instructions.



4 TRIM THE ENDS

Place the banded edge down on the work surface and use a sharp utility knife to trim the ends flush.



5 TRIM THE EDGES

Use a veneer edge trimmer to slice off the excess edge banding along the sides. A double-edge trimmer like this one (\$20) trims both edges at once. Single-edge trimmers cost about \$9 and work well. It just takes a little longer. Use sandpaper to remove any overhanging edge banding to create a perfectly flush edge.

BUILD THE CABINET BOXES

The cabinets are simple plywood boxes with drawers or doors added. The key to accuracy is to make sure that the edges of the plywood remain perfectly aligned as you assemble the boxes and that the cabinet box is square. **Photos 6 – 8** show how.



6 INSTALL THE SLIDES FIRST
It's easier to attach slides to the cabinet sides before the cabinet is assembled. Draw lines to indicate the center of the slides. Then center the screw holes on the line and attach the slide with the included screws.



7 NAIL, THEN SCREW PARTS
To prevent the plywood from sliding around when you're drilling pilot holes, tack the parts first with a brad nailer. Then drill countersink pilot holes and connect the parts with screws.



8 ATTACH THE BACK

If you're careful to cut the back perfectly square, you can use it to square the cabinet. Apply a bead of glue and set the back onto the cabinet. Make sure one edge of the back is flush with one side of the cabinet box and fasten it with 1-in. nails. Adjust the cabinet box until the other sides align, then partially drive a nail to hold it. Check the cabinet for square, then finish nailing on the back.

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✓Yes



✓Yes



xNo



✓Yes



✓Yes



✓Yes



✓Yes



✓Yes

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ALL THE PARTS YOUR CAR WILL EVER NEED

GO TO WWW.ROCKAUTO.COM ROCKAUTO, LLC (EST. 1999)

Figure A
Clothes
storage
tower

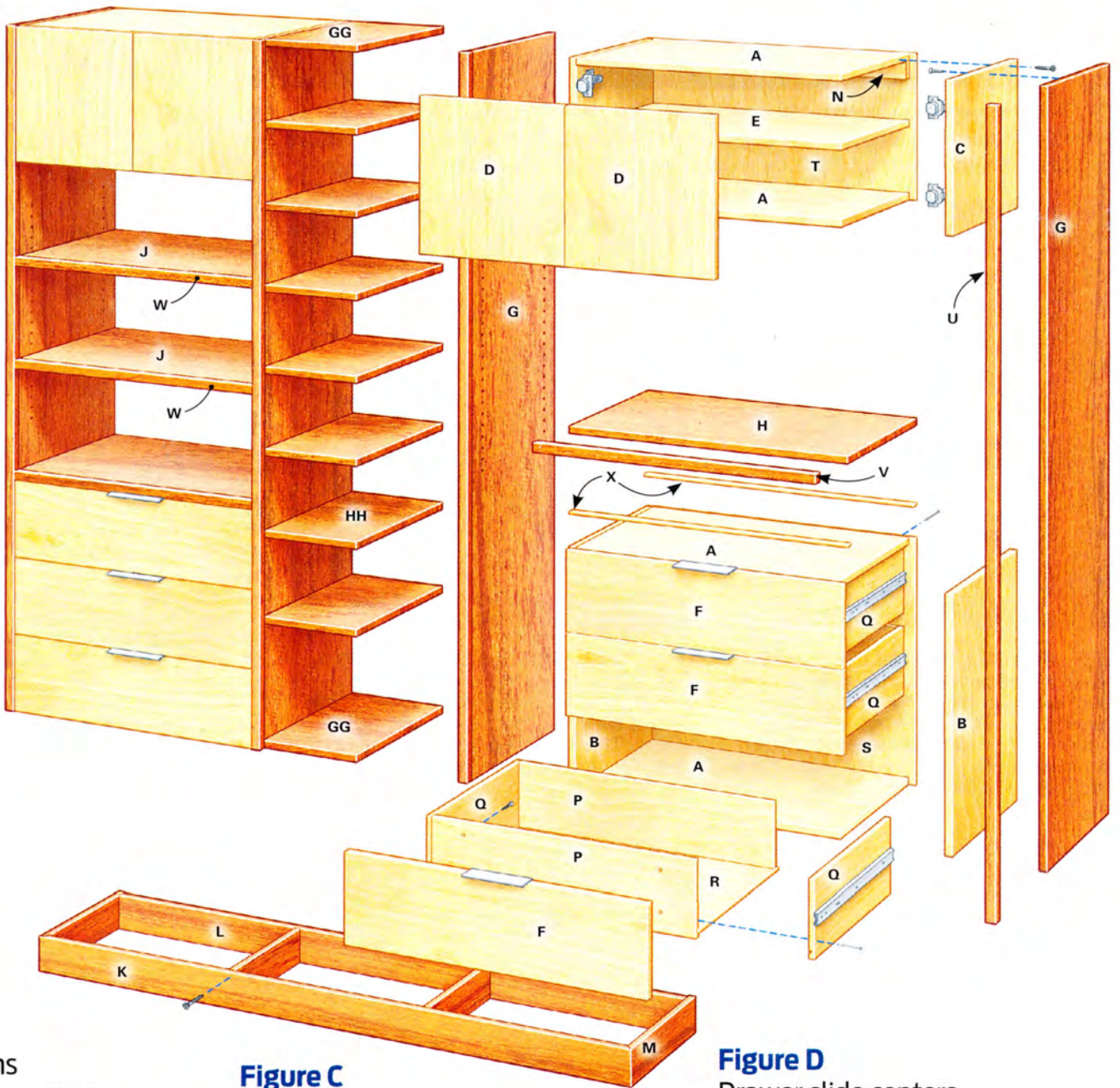


Figure B
Pin locations

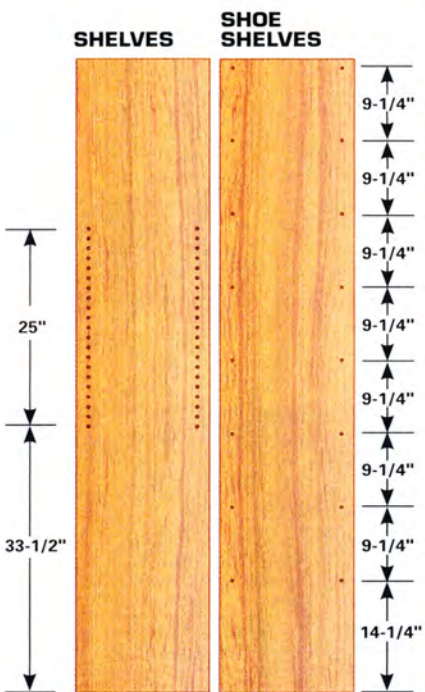


Figure C
Super-size
drawer or
pants
rack

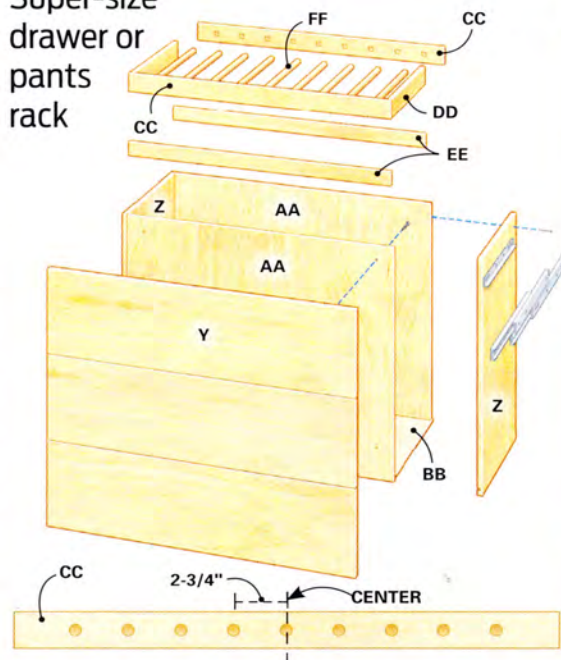
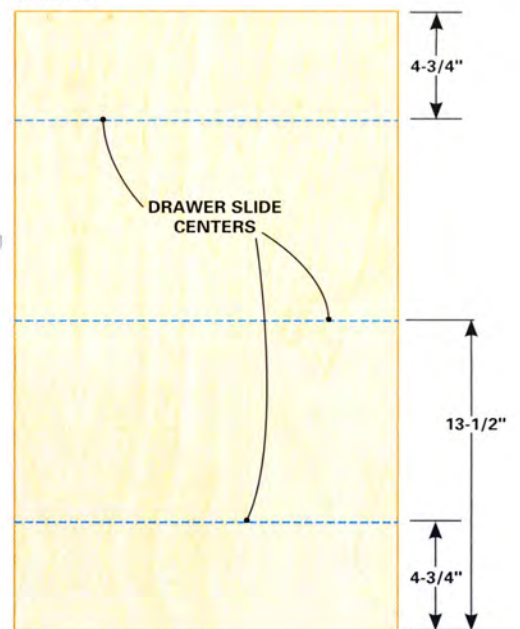


Figure D
Drawer slide centers
PART B



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How A Real Hero Uses The Next Minute

After leaving the local cinemplex and watching the latest superhero smash through walls, fly at the speed of sound, and crush the mutant aliens all done with the latest in computer graphics I was left a little cold. I checked my TAC-7 watch and that was two hours and four minutes wasted. What would a real hero do with those precious minutes?



We Only Need to Look Around Us to See the Real Thing.

We know those movies aren't real. The honors need to go to our live action heroes where every second carries risk: The firefighter in a 3 alarm blaze, the police officer racing to the scene, an ambulance driver trimming lifesaving seconds at break-neck speed, the nurse in the emergency room timing heart rates, and the Coast Guard rescue in 20 foot seas.

And without a doubt, there are over 2 million Action heroes who sign up for danger from the minute they enlist in our military. Each rely on their training every day so that they synchronize their actions and save lives.

Real life action heroes live next door and down the street and in our own homes. Some are overseas and some are in peril at this very minute. No capes or super powers, only bravery, sacrifice, and precision.

We will not pay a licensing fee to the movie studio so that we can say this watch was worn by a fictional spy or by a guy wearing spandex hanging from a wire in front of a green screen and then charge you big money for the privilege.

The TAC-7 was made for our real action heroes.

It is made from super tough stainless steel with luminous hands and markers that can be seen in any dark spot. The precision movement oscillates at 32,768 Hz for astounding accuracy. The timepiece is water resistant and carries a two year warranty on the movement so there is no reason to treat it gently.

And since we never really pay our heroes anywhere close to enough, we price the TAC-7 for the real world. The watch was originally \$299 but for the next few weeks, the TAC-7 is **only \$59**. The TAC-7 is for the real action heroes among us. And because of that we will be donating part of the proceeds to the USO and the Red Cross. To the real heroes.

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Stainless steel case with luminous hands & markers - Precision quartz movement - Band fits wrists 7"-9" - Water-resistant to 3 ATM

BUILD THE DRAWERS

The most critical part of the drawer-building process is to make sure the finished drawer is between 1 in. and 1-1/16 in. narrower than the inside dimensions of the cabinet to allow for the drawer slides. To determine the exact dimensions of the

front and back of the drawers (parts P), measure between the cabinet sides and subtract twice the thickness of the drawer plywood. Then subtract another 1-1/16 in. **Photos 9 - 14** show how to build and install the drawers.



9 GROOVE THE DRAWER PARTS Set your table saw fence at 1/2 in. and raise the blade 1/4 in. above the table. Cut a groove in the drawer sides and fronts. Move the fence away from the blade about 1/16 in. and make a second pass to widen the groove. Check the fit of the drawer bottom plywood. It should be snug but not too tight. You may need a third pass. After the grooves are cut, rip the backs to width.



10 BUILD THE DRAWER BOXES Glue and nail the sides to the front and back. Use glue sparingly to avoid squeeze-out mess. Use 1-1/4-in. nails and aim carefully to prevent them from shooting out the sides. Make sure the grooves line up—it's easy to get a part upside down.



11 SLIDE IN THE BOTTOM Check the fit of the drawer bottom and trim the width a little if needed. Don't force the plywood or it may push the drawer sides apart.



13 ATTACH THE DRAWER SLIDE Draw a line 3-3/4 in. from the top edge of the drawer. Center the drawer slide on the line, keeping the front edge lined up with the front of the drawer. Attach it with two screws. Add the remaining screws later to secure the drawer slide in place after making any adjustment.



12 NAIL THE DRAWER BOTTOM Measure diagonally to make sure the drawer is square. Then drive 1-in. nails through the drawer bottom into the drawer back to hold it in place.



14 INSTALL THE DRAWER FRONTS Mount each drawer front with hot glue, then pull it out and secure it with four screws driven from inside the drawer. Set the bottom door flush with the bottom of the cabinet. Then use two stacks of two pennies as spacers between the drawer fronts. The top drawer should be 1/8 in. below the top of the cabinet.

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HANG THE DOORS WITH EURO HINGES

This type of cabinet construction is perfect for Euro-style hinges. You simply mount a plate to the cabinet and drill a 35-mm (1-3/8-in.) recess in the door to accept the hinge. The Blum 120-degree clip hinges we're using are adjustable up and down, in and out, and side to side, making final door fitting a breeze. **Photos 15 - 21** show how to install the hinges and hang the doors.



15 MARK THE HINGE LOCATIONS

Mark the hinge position on the doors, 3 in. from the top and bottom. Then align the door with the cabinet and transfer the marks to the cabinet side.



16 START THE HINGE HOLES

We built this plywood jig as a guide for starting the hinge holes. You can also buy a jig, or simply mark the center of the hinge and use a center punch to create a starting hole. For these Blum hinges, the center of the hole is 7/8 in. from the edge of the door. Start drilling the hole with the 35-mm (or 1-3/8-in.) Forstner-style bit.



17 COMPLETE THE HINGE HOLE

Remove the guide so you can judge how deep to drill. With most bits you can drill until the top of the bit is flush with the surface. The recess should be 1/2 in. deep. Drill a hole in a scrap first to check the depth before drilling a door.



18 MOUNT THE HINGE

Press the hinge into the recess and align it with a square. Use a self-centering bit to drill pilot holes for the hinge screws. Then attach the hinge with the screws provided.



19 MARK FOR THE HINGE PLATES

Draw lines 1-7/16 in. from the front of the cabinet to locate the center of the hinge plates. If you're using a different hinge, check the instructions to find the correct distance.



20 ATTACH THE HINGE PLATES

Center the hinge plates on the marks and line up the center of the screw holes with the second mark. Drill pilot holes with a self-centering bit and attach the plates with the screws.



21 HANG THE DOOR

Clip the hinges to the plates to hang the doors. Don't bother to adjust the hinges until after the cabinet is mounted to the wall.

For people with a higher risk of stroke due to Atrial Fibrillation (AFib) not caused by a heart valve problem

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Ask your doctor if ELIQUIS is right for you.

ELIQUIS is a prescription medicine used to reduce the risk of stroke and blood clots in people who have atrial fibrillation, a type of irregular heartbeat, not caused by a heart valve problem.

IMPORTANT SAFETY INFORMATION:

■ **Do not stop taking ELIQUIS without talking to the doctor who prescribed it for you. Stopping ELIQUIS increases your risk of having a stroke.** ELIQUIS may need to be stopped, prior to surgery or a medical or dental procedure. Your doctor will tell you when you should stop taking ELIQUIS and when you may start taking it again. If you have to stop taking ELIQUIS, your doctor may prescribe another medicine to help prevent a blood clot from forming.

■ **ELIQUIS can cause bleeding which can be serious, and rarely may lead to death.**

■ **You may have a higher risk of bleeding if you take ELIQUIS and take other medicines that increase your risk of bleeding, such as aspirin, NSAIDs, warfarin (COUMADIN®), heparin, SSRIs or SNRIs, and other blood thinners. Tell your doctor about all medicines, vitamins and supplements you take.** While taking ELIQUIS, you may bruise more easily and it may take longer than usual for any bleeding to stop.

■ **Get medical help right away if you have any of these signs or symptoms of bleeding:**

- unexpected bleeding, or bleeding that lasts a long time, such as unusual bleeding from the gums; nosebleeds that happen often, or menstrual or vaginal bleeding that is heavier than normal
- bleeding that is severe or you cannot control
- red, pink, or brown urine; red or black stools (looks like tar)
- coughing up or vomiting blood or vomit that looks like coffee grounds
- unexpected pain, swelling, or joint pain; headaches, feeling dizzy or weak

■ **ELIQUIS is not for patients with artificial heart valves.**

■ **Before you take ELIQUIS, tell your doctor if you have:** kidney or liver problems, any other medical condition, or ever had bleeding problems.

Tell your doctor if you are pregnant or breastfeeding, or plan to become pregnant or breastfeed.

■ **Do not take ELIQUIS if you** currently have certain types of abnormal bleeding or have had a serious allergic reaction to ELIQUIS. A reaction to ELIQUIS can cause hives, rash, itching, and possibly trouble breathing. Get medical help right away if you have sudden chest pain or chest tightness, have sudden swelling of your face or tongue, have trouble breathing, wheezing, or feeling dizzy or faint.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

Please see additional Important Product Information on the adjacent page.

Individual results may vary.

Visit ELIQUIS.COM
or call 1-855-ELIQUIS

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432US13BR01723-02-01 09/13

Eliquis®
(apixaban) tablets 5mg



IMPORTANT FACTS

Eliquis[®] / _{Rx ONLY}
(apixaban) tablets

The information below does not take the place of talking with your healthcare professional. Only your healthcare professional knows the specifics of your condition and how ELIQUIS[®] may fit into your overall therapy. Talk to your healthcare professional if you have any questions about ELIQUIS (pronounced ELL eh kwiss).

What is the most important information I should know about ELIQUIS (apixaban)?

Do not stop taking ELIQUIS without talking to the doctor who prescribed it for you. Stopping ELIQUIS increases your risk of having a stroke. ELIQUIS may need to be stopped, prior to surgery or a medical or dental procedure. Your doctor will tell you when you should stop taking ELIQUIS and when you may start taking it again. If you have to stop taking ELIQUIS, your doctor may prescribe another medicine to help prevent a blood clot from forming.

ELIQUIS can cause bleeding which can be serious, and rarely may lead to death. This is because ELIQUIS is a blood thinner medicine that reduces blood clotting.

You may have a higher risk of bleeding if you take ELIQUIS and take other medicines that increase your risk of bleeding, such as aspirin, nonsteroidal anti-inflammatory drugs (called NSAIDs), warfarin (COUMADIN[®]), heparin, selective serotonin reuptake inhibitors (SSRIs) or serotonin norepinephrine reuptake inhibitors (SNRIs), and other medicines to help prevent or treat blood clots.

Tell your doctor if you take any of these medicines. Ask your doctor or pharmacist if you are not sure if your medicine is one listed above.

While taking ELIQUIS:

- you may bruise more easily
- it may take longer than usual for any bleeding to stop

Call your doctor or get medical help right away if you have any of these signs or symptoms of bleeding when taking ELIQUIS:

- unexpected bleeding, or bleeding that lasts a long time, such as:
 - unusual bleeding from the gums
 - nosebleeds that happen often
 - menstrual bleeding or vaginal bleeding that is heavier than normal
- bleeding that is severe or you cannot control
- red, pink, or brown urine
- red or black stools (looks like tar)
- cough up blood or blood clots

- vomit blood or your vomit looks like coffee grounds
- unexpected pain, swelling, or joint pain
- headaches, feeling dizzy or weak

ELIQUIS (apixaban) is not for patients with artificial heart valves.

What is ELIQUIS?

ELIQUIS is a prescription medicine used to reduce the risk of stroke and blood clots in people who have atrial fibrillation.

It is not known if ELIQUIS is safe and effective in children.

Who should not take ELIQUIS?

Do not take ELIQUIS if you:

- currently have certain types of abnormal bleeding
- have had a serious allergic reaction to ELIQUIS. Ask your doctor if you are not sure

What should I tell my doctor before taking ELIQUIS?

Before you take ELIQUIS, tell your doctor if you:

- have kidney or liver problems
- have any other medical condition
- have ever had bleeding problems
- are pregnant or plan to become pregnant. It is not known if ELIQUIS will harm your unborn baby
- are breastfeeding or plan to breastfeed. It is not known if ELIQUIS passes into your breast milk. You and your doctor should decide if you will take ELIQUIS or breastfeed. You should not do both

Tell all of your doctors and dentists that you are taking ELIQUIS. They should talk to the doctor who prescribed ELIQUIS for you, before you have **any** surgery, medical or dental procedure.

Tell your doctor about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. Some of your other medicines may affect the way ELIQUIS works. Certain medicines may increase your risk of bleeding or stroke when taken with ELIQUIS.

How should I take ELIQUIS (apixaban)?

Take ELIQUIS exactly as prescribed by your doctor. Take ELIQUIS twice every day with or without food, and do not change your dose or stop taking it unless your doctor tells you to. If you miss a dose of ELIQUIS, take it as soon as you remember, and do not take more than one dose at the same time. **Do not run out of ELIQUIS. Refill your prescription before you run out. Stopping ELIQUIS may increase your risk of having a stroke.**

What are the possible side effects of ELIQUIS?

- See “What is the most important information I should know about ELIQUIS?”
- ELIQUIS can cause a skin rash or severe allergic reaction. Call your doctor or get medical help right away if you have any of the following symptoms:
 - chest pain or tightness
 - swelling of your face or tongue
 - trouble breathing or wheezing
 - feeling dizzy or faint

Tell your doctor if you have any side effect that bothers you or that does not go away.

These are not all of the possible side effects of ELIQUIS. For more information, ask your doctor or pharmacist.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

This is a brief summary of the most important information about ELIQUIS. For more information, talk with your doctor or pharmacist, call 1-855-ELIQUIS (1-855-354-7847), or go to www.ELIQUIS.com.

Manufactured by:

Bristol-Myers Squibb Company
Princeton, New Jersey 08543 USA

Marketed by:

Bristol-Myers Squibb Company
Princeton, New Jersey 08543 USA

and

Pfizer Inc

New York, New York 10017 USA

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PATIENT ASSISTANCE FOUNDATION

This independent, non-profit organization provides assistance to qualifying patients with financial hardship who generally have no prescription insurance. Contact 1-800-736-0003 or visit www.bmspa.org for more information.

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Based on 1289808 / 1298500 / 1289807 / 1295958
December 2012
432US13CB03602

BUILD THE SIDE PANELS

The side panels have 1-in.-wide solid wood edging on one side and shelf-pin holes on one face. If you'll be adding shoe shelves between two towers as shown in the photo on the opening page, then drill holes for these shelf pins too. Be careful to attach the nosing to the correct edge of each panel. Since the shelf-pin holes are not an equal distance from top and bottom, the two sides are not interchangeable, but are mirror images.



22 DRILL THE SHELF-PIN HOLES

We're using a store-bought jig, but you can also use a length of 1/4-in. pegboard as a template for drilling the holes. Mount a stop on your 1/4-in. drill bit to drill the holes 3/8 in. deep.



23 GLUE AND NAIL THE NOSING

Spread a bead of glue along the plywood edge. Align the wood edging flush to the inside edge of the panel and attach it with 1-1/4-in. nails.

SUPER-SIZE DRAWER

Replacing three drawers with one huge drawer allows you to hang pants or store two clothes hampers. The big drawer is just a deeper version of the small drawers. But to keep it from sagging, we mounted the drawer on file-cabinet drawer slides instead. To simulate three drawers, we grooved a single sheet of plywood by running it through the table saw with the blade raised 1/4 in., and used this for the drawer front. To convert the drawer for pants storage, just build the dowel rack and rest it on cleats.



Super-size laundry drawer

Figure C shows the parts for the deep drawer. Center the cabinet part of the file-drawer slide 4-3/4 in. from the top of the cabinet, and the drawer part of the slide 1 in. down from the top of the drawer. Finish by mounting the grooved drawer front.



Pullout pants rack

Use Figure C as a guide to build this rack from 2-in. strips of plywood and 5/8-in. dowels. Screw cleats to the front and back of the drawer, 2-1/4 in. from the top, to support the rack.



INSTALL THE CABINETS IN YOUR ROOM

After all the cabinets and side panels are built, you'll want to stain and varnish or paint them before installing them in your room. Remove all the drawers, doors and hardware to make finishing easier. Carefully sand all the parts. We used a random orbital sander and 120-grit sandpaper. Then we stained the side panel and shelves and finally brushed two coats of polyurethane on all the parts. After the finish dries, reinstall the hardware and carry the cabinets, side panels and base into your room. Mark the studs in the location where you'll install the cabinets. **Photos 24 – 27** show the installation steps.



24 LEVEL THE BASE Installing the towers is easier if you start out with a level base. If your floor isn't level, slide shims under the base to level it. Then screw it to the studs. Cut off the shims and cover the gap with molding if necessary. You can make your own molding by ripping 3/8-in.-wide strips from 3/4-in. maple, or buy base-shoe molding.



25 ASSEMBLE THE TOWERS Arrange the cabinets and side panels on the floor. We built simple 2x4 supports to hold the cabinets and side panels in place while we screwed them together. Drill holes through the cabinet sides a few inches from each corner. Then carefully line up the panels so the tops and bottoms are flush with the cabinets, and attach them with 1-1/4-in. screws.



26 ATTACH THE TOWERS TO THE WALL Transfer the stud locations to the inside of the cabinet and drive 2-1/2-in. screws into the studs to secure the towers. Use the 12-in.-wide shoe shelves as spacers at the top and bottom to position the second tower.



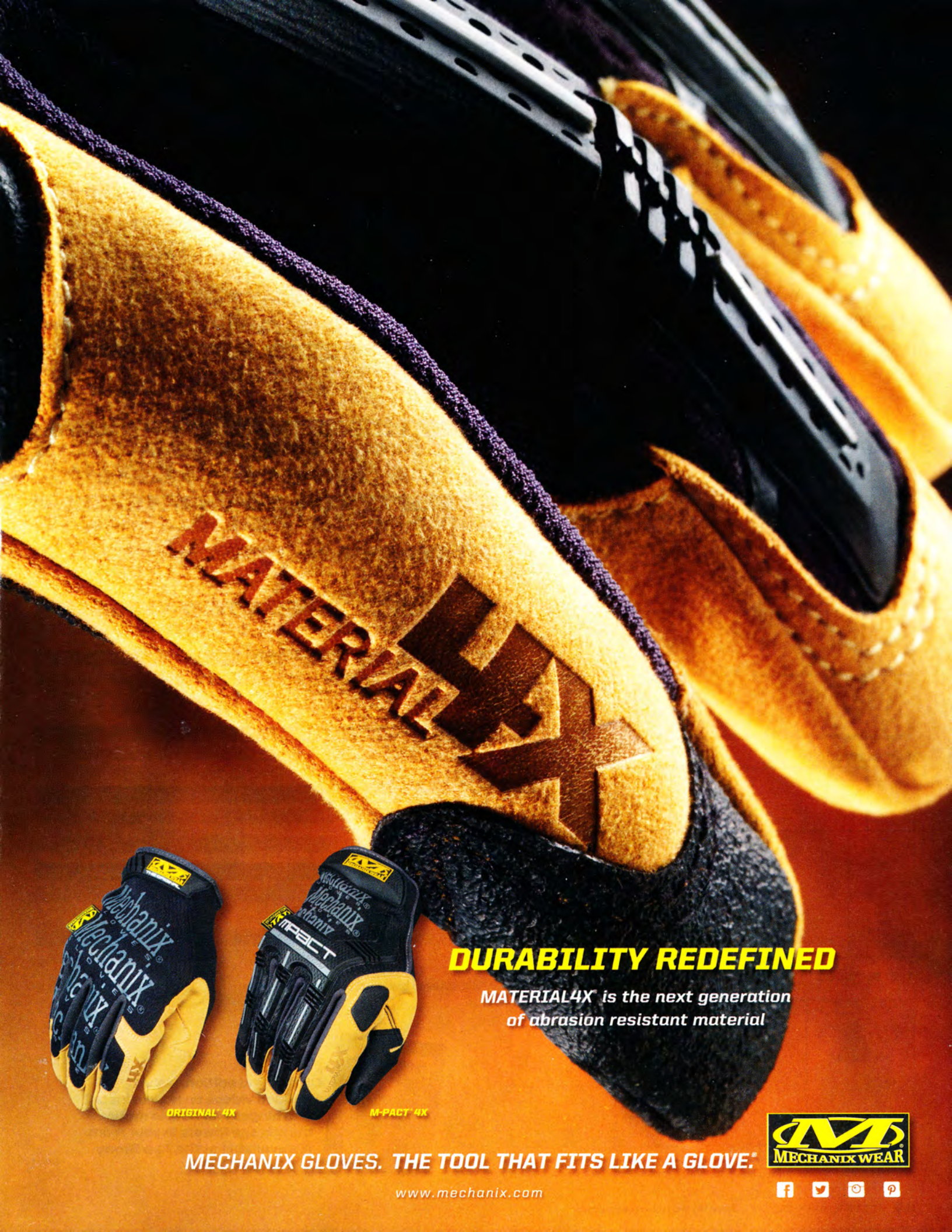
27 FINISH UP BY ADDING THE TOPS, DOORS, DRAWERS AND SHELVES Tilt the top into place and attach it with 1-1/2-in. screws from inside the base cabinet. Then clip the doors onto the hinge plates and slide the drawers into the drawer slides to finish the job.

Materials List (for one tower)

ITEM	QTY.
4' x 8' x 3/4" maple plywood	3*
4' x 8' x 1/2" shop-grade plywood	1
4' x 8' x 1/4" shop-grade plywood	1
3/4" x 5-1/2" x 8' maple board	1
13/16" maple veneer edge banding	75 ln. ft.
16" full-extension drawer slides	3 pairs
Blum 120-degree clip-top hinges (B071T5550)	4
Blum frameless Omm screw-on mounting plates (B173H710)	4
1/4" shelf pins	12
Screws, nails, wood glue, drawer and door pulls, finishing supplies.	
Optional drawer slide for super-size drawer: KV 8505 16" file drawer slide	1
Optional hamper for super-size drawer: Rubbermaid Configurations Hampers	2

* Leftover materials can be used to make a drawer front for the super-size laundry drawer and the shoe shelves.

We purchased the Blum hardware and the file drawer slide from www.hardware.com.



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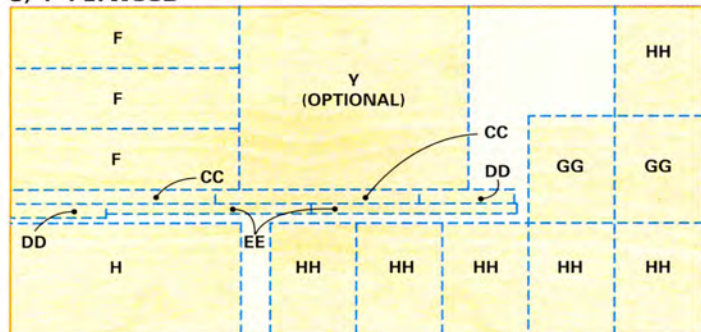


Figure E
Plywood cutting diagrams

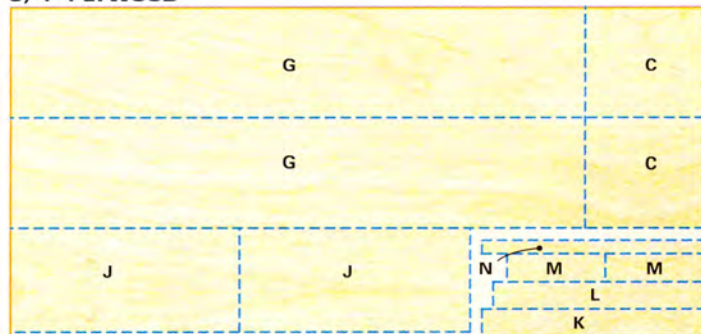
1/4" PLYWOOD



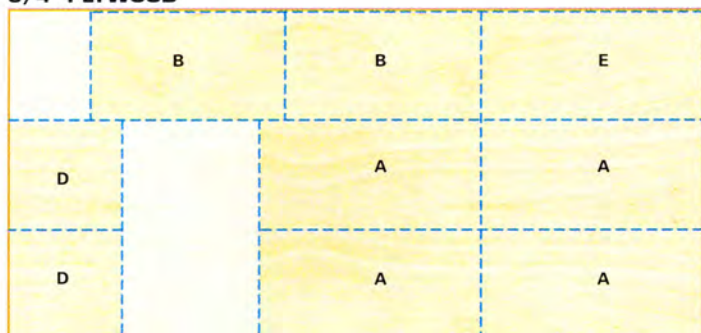
3/4" PLYWOOD



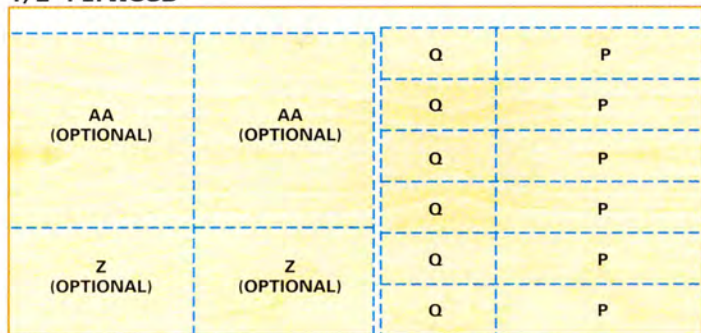
3/4" PLYWOOD



3/4" PLYWOOD



1/2" PLYWOOD



Cutting List

KEY	DIMENSIONS	QTY.	NAME
3/4" MAPLE PLYWOOD			
A	15-7/8" x 30-1/2"	4	Cabinet tops and bottoms
B	15-7/8" x 27"	2	Lower cabinet sides
C	15-7/8" x 16"	2	Upper cabinet sides
D	15-3/4" x 15-7/8"	2	Upper cabinet doors
E	15-7/8" x 30-3/8"	1	Upper cabinet shelf
F	8-7/8" x 31-3/4"	3	Lower cabinet drawer fronts
G	16-1/8" x 79-3/4"	2	Side panels
H	16-1/8" x 32"	1	Lower cabinet top
J	15-1/4" x 31-7/8"	2	Shelves
K	4" x 30-1/2"	1	Base front (extend as needed for two towers)
L	4" x 29"	1	Base back
M	4" x 13-1/2"	2	Base sides
N	2" x 30-1/2"	1	Upper cabinet hanging strip
1/2" SHOP-GRADE PLYWOOD			
P	7-1/2" x 28-1/2"	6*	Drawer fronts and backs (cut backs to fit)
Q	7-1/2" x 15-3/4"	6	Drawer sides
1/4" SHOP-GRADE PLYWOOD			
R	15-1/2" x 29"	3	Drawer bottoms
S	27" x 32"	1	Lower cabinet back
T	16" x 32"	1	Upper cabinet back
3/4" SOLID MAPLE			
U	1" x 79-3/4"	2	Side panel edging
V	1" x 32"	1	Lower cabinet top edging
W	1" x 31-7/8"	2	Shelf edging
X	1/4" x 32"	2	Spacers
OPTIONAL LARGE DRAWER			
3/4" MAPLE PLYWOOD			
Y	26-7/8" x 31-3/4"	1	Grooved drawer front
1/2" SHOP-GRADE PLYWOOD			
Z	15-3/4" x 25"	2	Drawer sides
AA	28-1/2" x 25" *	2	Drawer front and back (cut back to fit)
1/4" SHOP-GRADE PLYWOOD			
BB	15-1/2" x 29"	1	Drawer bottom
OPTIONAL PANTS RACK			
3/4" MAPLE PLYWOOD			
CC	2" x 28-3/8"	2	Front and back
DD	2" x 13-1/8"	2	Sides
EE	1-1/2" x 28-1/2"	2	Cleats
5/8" DOWELS			
FF	13-7/8"	9	Dowels
OPTIONAL SHOE SHELVES			
GG	16" x 12"	2	Top and bottom shelves
HH	16" x 11-7/8"	7	Middle shelves

* Adjust size to compensate for plywood thickness



On the iPad edition, we've included videos on how to install Euro hinges and how to mount the storage towers in your room. It's available at the App Store.

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I LOVE this thing!

Ingenious products field-tested by our editors

"The right tool for the job" should be the motto of every DIYer. The right tool doesn't need to be a fancy specialty item that costs hundreds of dollars. It can be a simple tool or product you already have around the house. We asked our Field Editors as well as the editors here at *The Family Handyman* to tell us about products and tools that they've recently used to solve a specific problem. Once again our editors came through with some smart tips that can help you solve one of your never-ending DIY challenges.

by **Mark Petersen**
editors@thefamilyhandyman.com

LADDER-FREE LIGHTBULB CHANGES

The walls in my shop are more than 12 ft. high. I love the space, except when it comes to changing lightbulbs. Last Father's Day, I asked one of my kids for a lightbulb changer on a pole. I wasn't sure that it would work (that's why I didn't spend my own money on it), but I've already changed a half-dozen lightbulbs. I love this thing! My son spent \$20 at a home center, which is about half of what it costs me to feed him each day.



Mark Petersen,
Contributing Editor

Brush vault

With some TLC, a good paintbrush will last for years. I found a product that protects my brushes long after the case they came in has given up the ghost. It's called The Paint Brush Cover. Now I don't have to hang my brushes on the wall. I can store them in a bin with the rest of my painting tools without having to worry about the bristles getting bent out of shape. There's also foam at the handle to create an airtight



Jeff Gorton,
Associate Editor

seal, so I can store my brushes in between coats without having to wash them. I paid \$13 for a three-pack at thepaintbrushcover.com.



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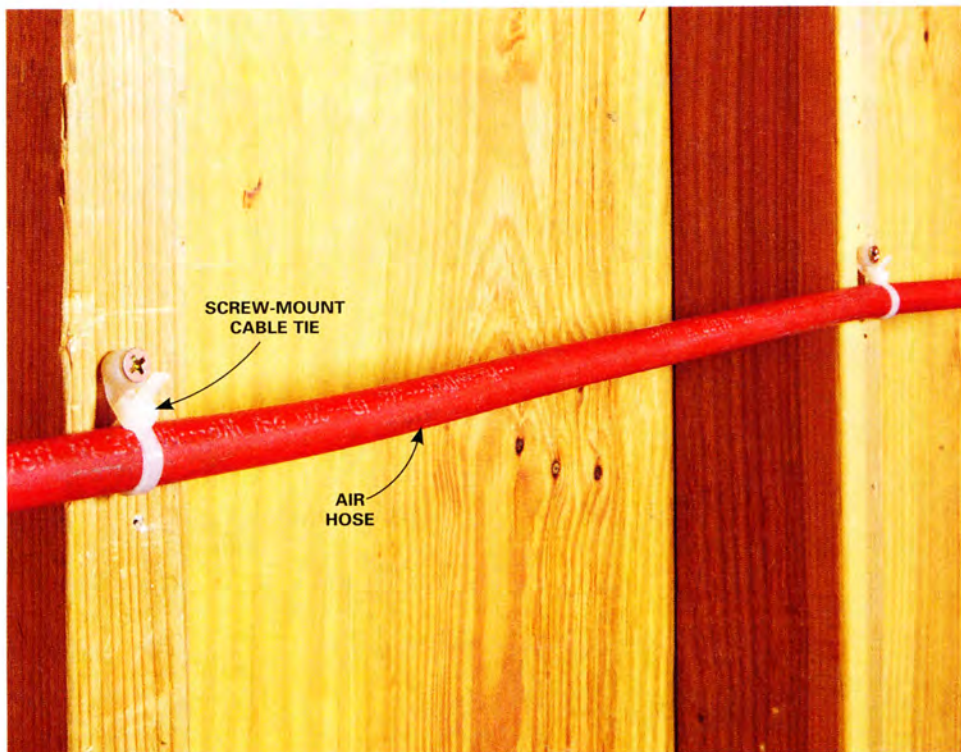
HOIST YOUR BIKE OUT OF THE WAY

When it comes to garages, there's no such thing as enough space. One product I found useful to free up some floor space is a bicycle hoist. It's easy to install and very easy to use. When shopping for a hoist, beware of models that have undersized ropes. They can slip off the pulley wheels and jam. Look for one with a good, hefty rope. I bought this one at a home center for \$20.



Kevin Lind,
Field Editor





SCREW-MOUNT CABLE TIE

I use my air compressor a lot, but it's as loud as a freight train, and is always interrupting the ball game on the radio. So I moved it out of my shop and into a storage room. Instead of running an expensive copper air line from the compressor to my shop, I just hung a regular air hose on the wall with screw-mount cable ties. A bag of 50 ties cost me less than \$10, and it took me about 15 minutes to hang the air hose.



Travis Larson,
Senior Editor



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PROTECT YOUR TOOLS

Tarps do a decent job of protecting tools from the elements, but it's hard to keep them in place, especially when you're traveling down the road. The wind always seems to catch underneath, which can send them sailing.

The next time you have to take your tools on a road trip, try wrapping them in a grill cover. The size and shape of a grill cover make it much easier to secure with a strap or bungee. The cover also protects your tools from rain or morning dew if you plan to leave them out overnight in

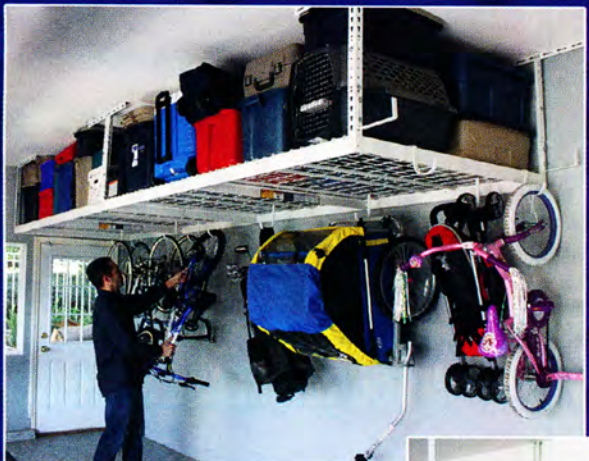


Kirk Pennings,
Field Editor

your backyard. Home centers and discount stores carry grill covers in various sizes costing from \$15 to \$50.



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TANGLE PREVENTION

I like to store a lot of gear under the backseat of my truck. It can get pretty cluttered under there, but stretch wrap helps to restore order. It's perfect for bundling items that would otherwise turn into one big frustrating tangled mess. I also wrap my tow strap, tie-



Mark Petersen,
Contributing Editor

downs, jumper cables, raincoat, extension cord, bungees and extra pairs of gloves. I'm kinda addicted to the stuff, but for about \$10 for a 1,000-ft. roll, it's one habit I can afford.



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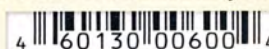
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Find switches in the dark

Our house was built in the days of gas lighting. When electricians installed the retrofit electrical system, they put light switches where it was convenient for them, not where the rest of us expect switches to be. To make life easier, I gave the misplaced switches a dab of glow-in-the-dark paint. Now our guests don't have to grope around in the dark anymore.



A 7-oz. can of Rust-Oleum glow-in-the-dark paint costs about \$9 at home centers.



Gary Wentz,
Senior Editor



RIDGID FAUCET
AND SINK INSTALLER

Easy faucet replacement

I've replaced many kitchen faucets. It's not a hard job, but reaching the connectors way up behind those deep sink basins can be a real pain. A few weeks ago, I was replacing an old kitchen faucet. While getting supplies at Home Depot, I saw this Ridgid Faucet and Sink Installer for \$20. I thought I'd give it a try. Wow! I love this tool. The previous faucet, which I installed with conventional tools, took me twice as long. This tool has all the fittings for most types of faucets and doesn't take up much room in my toolbox.



Leo Paquin,
Field Editor



STRAPS FOR STRAPS

I use ratcheting tie-down straps to ensure that the stuff in my trailer stays in my trailer. I have tie loops on each side of my trailer, perfect for hooking to. But whenever I would hook the first tie-down to one of the loops, it would fall off before I could walk around to hook the other side. I felt like I was stuck in a scene from "The Three Stooges."

I recently stumbled across a product called Hook-Tight. It keeps straps and bungees in place while you secure them. You can find them at some home centers, but I bought a pack of four for \$6 at angelguardproducts.com.

They're worth every penny.



Rick Muscoplat,
Contributing
Editor



Become a TFH Field Editor

You don't have to be a pro to be a Field Editor. You just need to be a self-proclaimed DIYer. Once you sign up, you'll receive an occasional e-mail asking for DIY tips, recommendations and once in a while, a goof. Send an e-mail to iwant2beafieldeditor@familyhandyman.com. If we use your contribution, you'll receive \$100 and maybe even get your mug in the mag.

Meet the Beauty in the Beast

Discover this spectacular 6½-carat green treasure from Mount St. Helens!

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Electricians use step bits all the time to drill electrical boxes and circuit panels. I've used mine to prep storm door hardware and drill large starter holes in gutters so I could cut out a downspout hole with a tin snips. A good-quality 1/8-in. to 1/2-in. 13-hole step drill bit costs about \$20. One that creates a 1-in. hole will cost \$30. You can save money by buying them in a set.



Matthew Kelly,
Field Editor



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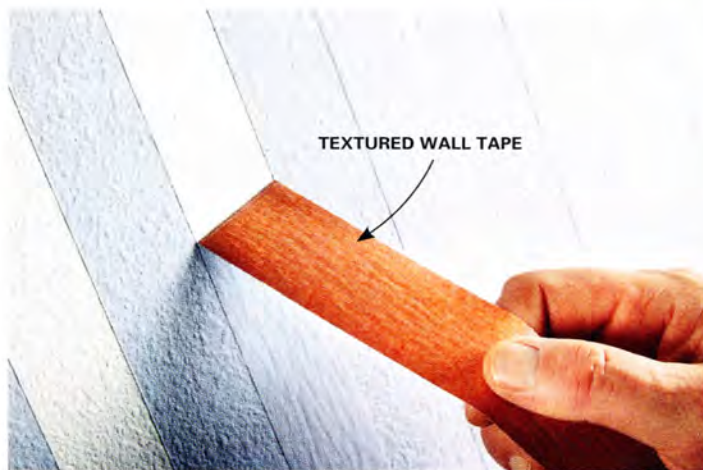
Simultaneously attach and level a continuous stringer on which to stack heavy or large format tile vertically.

Erase scratches

When we moved into our house there were dull areas on the black plastic door of the microwave. A closer look revealed that the dullness was not dirt or smudges but fine scratches because someone had used an abrasive cleaning product. I happened to have a swirl remover product intended for automobile paint. I followed the instructions for "hand application," and the results were amazing. Just be careful about using it on a surface that has text printed on the plastic because it will remove the printing.



Don Confarotta,
Field Editor



TEXTURED WALL TAPE

Crisp paint lines on textured walls

Masking a textured wall has always been a challenge. The paint creeps under the masking tape, making it impossible to achieve a crisp line. Rubbing a paintable caulk over the edges of the tape helps, but it's a messy process and leaves behind noticeable ridges.

FrogTape has created a two-part tape kit specifically for textured surfaces. All you do is apply the tape and then cover the edge with the liquid edge sealer. After 15 minutes, you're ready to paint. You can buy the kit at home centers and hardware stores for \$17.



Ken Collier,
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20

SECRET HIDING PLACES

Clever ways to hide your valuables

by Travis Larson



Got some real valuables to hide? Frankly, the best advice is to get a safe-deposit box at your bank. But that's not very fun. Plus, it's a hassle if you need to get to your valuables often or quickly. Here are a bunch of clever, simple ways to hide those items from all but the smartest, most determined crooks.



The old hollowed-out book trick

We've all seen the hollowed-out book, but there's not much room in one of those. Instead, use several books with a plywood box attached to the back. If you have a band saw for cutting out the pages, great. If not, you can use a jigsaw. (After all, books are just a form of wood.)

If the sides of the books will be visible, fold back the covers of the books on the left and right sides of the assembly before cutting. Build a plywood box to fit the opening and glue the book parts to the box with construction adhesive. The disadvantage? You can see inside the box on low shelves, so you need to display it so the opening is above eye level.



Right out in the open

It doesn't have to be an old vacuum cleaner. Any common household item that has a cavity will work. Think old printers, computer towers, children's toys, etc. (Just be sure family members know about it so your valuables don't get donated or tossed!) For easy access, choose an item that opens instantly, like a vacuum cleaner bag compartment. For more security, choose an item with a cover that screws shut.



Air-return stash

Cut out a stud space opening to fit a return air grille. Cut off the grille screws and glue just the heads in place. Run four drywall screws into the corners of the opening so they fit just inside the rim of the grille. Then glue rare earth magnets to the back of the grille so they line up with the screw heads.



Buried treasure

Roll up some cash, stick it in a medicine bottle or any other watertight container, and bury it in a potted plant. For quicker access and to keep dirt from getting under your fingernails, place a stone or pine cone over it. Not many burglars are going to be excavating around your houseplants.

MORE HIDING PLACES





5

False-bottom drawer

Pick a deep drawer so the depth change won't be obvious. Cut 1/4-in. plywood 1/16 in. smaller than the drawer opening and rest it on a couple of wood strips that are hot-glued to the drawer sides. Then hot-glue some item you'd expect to find in that drawer to the bottom so you have a handle to lift the false bottom and reveal the booty.



6

Cabinet hidey-hole

Between almost every pair of upper cabinets, there's a 1/2-in. gap. Take advantage of that gap by hanging a manila envelope containing, oh, I don't know, about two grand in hundred-dollar bills? Hang the cash with binder clips that are too wide to fall through the crack.



7

Toe-kick hideaway

There's an enormous 4-in.-tall cavity under all those kitchen cabinets behind the toe-kicks. It takes a few carpentry skills, but you can pull the toe-kicks free and make them removable. Most are 1/4-in. plywood held in place with 1-in. brads, and they're pretty easy to pull off. If you have a secondary 3/4-in. toe-kick, you'll have to cut it out at both ends. An oscillating tool works well for that task.

Stick both halves of round hook-and-loop self-adhesive tape to the toe-kick. Then push the toe-kick into place. The adhesive will stick to the cabinet base and leave half of the hook-and-loop tape in place when you pull it free. You can store approximately \$2.4 million in gold bullion under two average-size cabinets—provided the floor is strong enough to support it.



8

Counterfeit containers

Go online and type in "secret hiding places" and you'll be amazed by how many brand-name phony containers are available. Comet, Coca-Cola, Bush Beans—whatever. But you can craft a homemade version too. This mayonnaise jar had its interior spray-painted with cream-colored paint for plastic.



9

The appliance caper

Fridges and dishwashers have a snap-off grille in the front. Well, there's a lot of secret storage space under there. Ask yourself this: How many burglars will be thinking about cleaning your refrigerator coils? But before you stuff treasures under a fridge, take a peek to see where the coils are. On some models, a stack of cash might block the airflow. That will make the fridge work harder and could even damage it.

OUR FIELD EDITORS WEIGH IN

We received lots of tips from our Field Editors about their hiding spots—and we promised not to include their names or addresses. Here are their favorites:

10. “Drill a hole in the top of any interior door. Size it to fit a cylinder such as an old film container or a cigar tube. Roll up some bills and keep them there.”
Editor’s Note: If you want to do this trick on a hollow-core door, you have to stick close to the outside edges. Look at the door from the top and you’ll see how wide the solid internal frame is.

11. “Which paint can contains the gold?”

12. “It took some effort, but I freed a tread from the oak stairs to the second story and attached a piano hinge to the back. It’s almost invisible.”

13. “Whenever I build a piece of furniture, I build in a stash spot. The last project I built was a dresser, and when I assembled it, I put a 1/4-in. sheet of plywood just above the top drawers and installed a piano hinge on the top. That’s where we keep everything we care about.”

14. “Believe it or not, I put our passports and a bit of cash underneath the shroud that covers the garage door opener.”

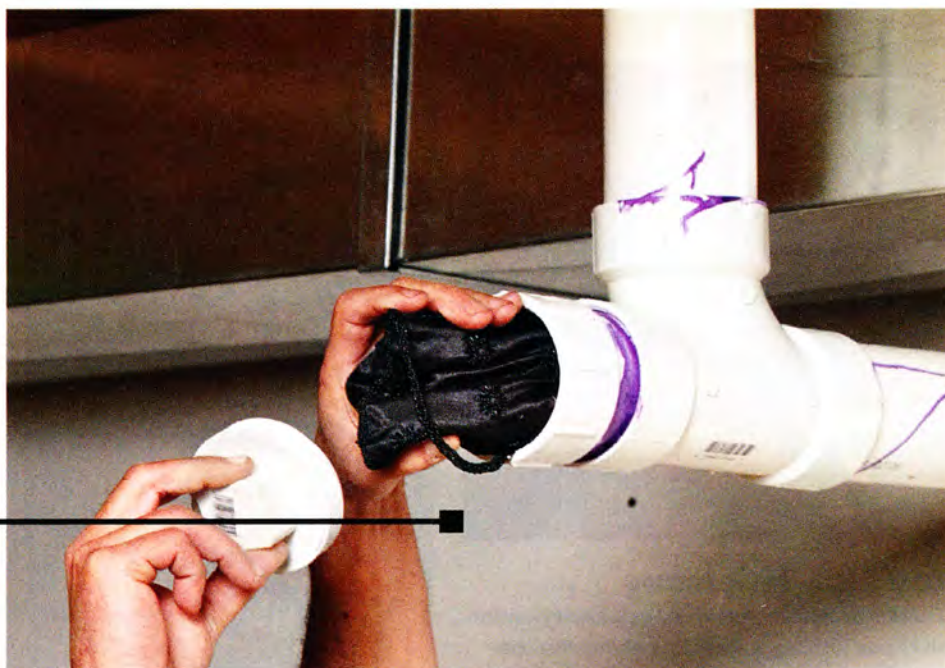
15. “I put in a fake PVC pipe complete with a cleanout plug in my basement. Unscrew the plug and there are the goods.”

16. “How many thieves are going to go through the dozens of pockets in your closet? I put cash in the pockets of my old pants and suit coats.” Just be sure the clothes don’t get donated!

17. “I think the key is to use lots of hiding places. It’s stupid to put all your eggs in one basket. I keep hundred-dollar bills between pages in books, tape an envelope behind my headboard and put cash behind the false panel in my dishwasher.”

18. “No burglar worth his salt looks in a kid’s room for valuables. It’s just full of useless junk. So find somewhere in there where the kid won’t find it either.”

19. “My secret stash is taped on the underside of drawers in the kitchen.”



Hide a key in plain sight

Say you want to hide a key—other than under the rug or over the door. How about mounting a phony plastic LB fitting. Screw it to the wall and run a bit of 1/2-in. conduit to the ground so it looks official. Cut the head off the bottom screw and glue it in place. That’s it. Swing the cover aside and there’s the key.

Got an idea you’d like to share?

We’re looking for more hiding tricks. So if you’d like an extra hundred to stash in that secret spot, send your idea to editors@thefamilyhandyman.com. If we use it, we’ll be happy to send you \$100.

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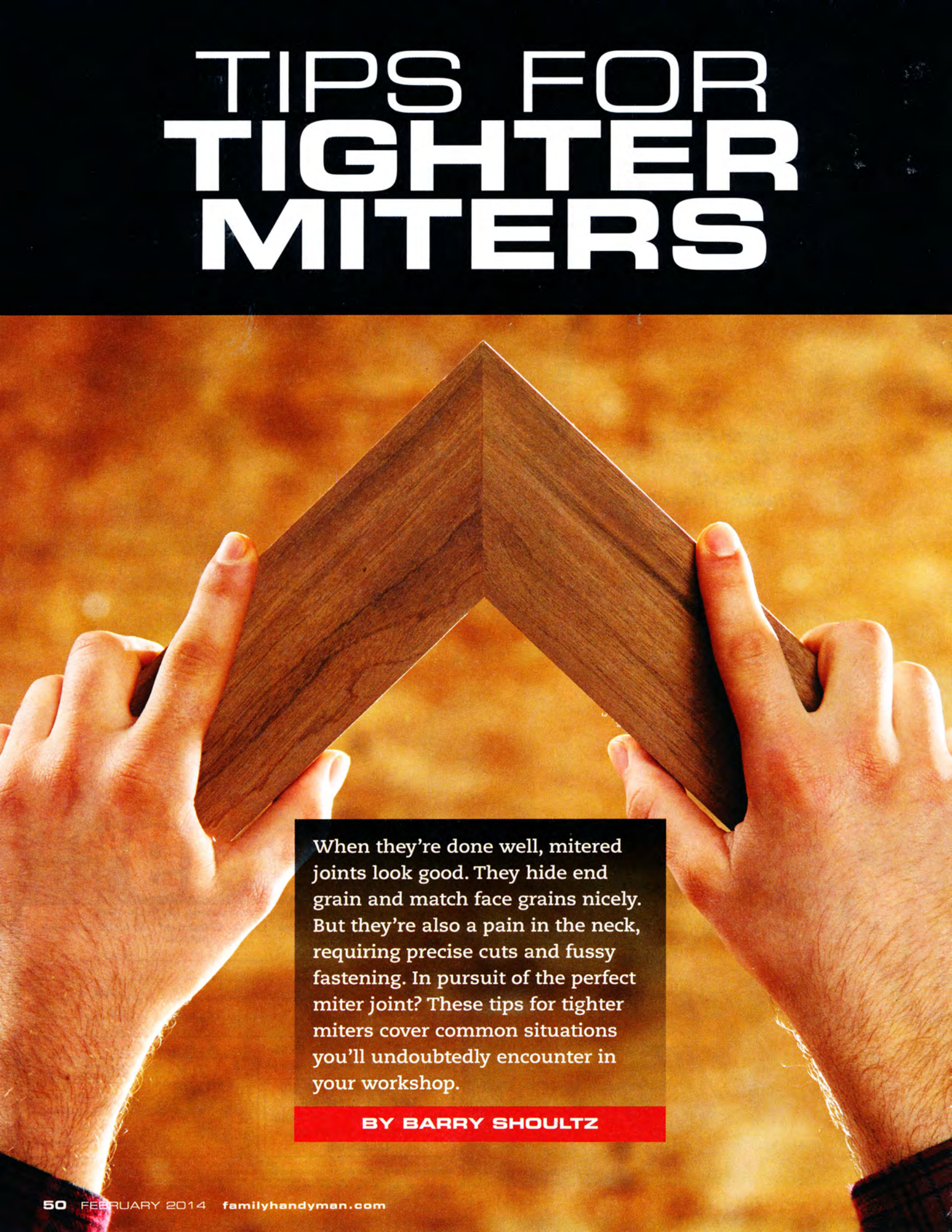
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TIPS FOR TIGHTER MITERS



When they're done well, mitered joints look good. They hide end grain and match face grains nicely. But they're also a pain in the neck, requiring precise cuts and fussy fastening. In pursuit of the perfect miter joint? These tips for tighter miters cover common situations you'll undoubtedly encounter in your workshop.

BY BARRY SHOULTZ

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Use scrap wood guides for a perfect fit

It's dang near impossible to get the length and position of a mitered part right unless you can butt it up against the adjoining miters. To provide a guide, tape or clamp mitered scraps in place. Remove the scraps as soon as you glue the part in place—otherwise, stray glue might make those temporary guides permanent.

ALIGN WITH BISCUITS



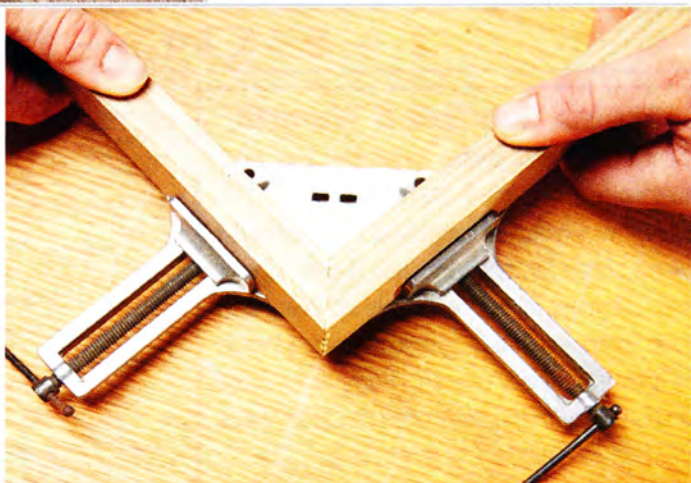
It's not easy to align and clamp miters, especially when they're lubricated with a coat of slippery glue. That's why woodworkers often use biscuits on miter joints even where extra strength isn't needed. Cutting biscuit slots is a minor job that provides major help at glue-up time.



Barry Shoultz is a Field Editor living on 40 acres of forest near Kettle River, Minnesota. For the past 25 years, he

has operated a marketing firm specializing in national business-to-business marketing and public relations.

Square up with corner clamps



With some miter-clamping methods, you need to grab a square and make sure the corner is exactly 90 degrees. Not so with corner clamps; they automatically hold parts perfectly square. They're available at home centers or online for \$10 to \$50 apiece.

Match wood grain

Whether you're banding a tabletop or making a picture frame, make sure the wood color and the grain pattern match at the miters. Selecting matching wood at the lumberyard takes only a few extra seconds and gives you much better-looking miters.

BAD

GOOD



Miter, assemble then rout

Shaped moldings can be tough to miter, align and clamp. So make life easier by starting with plain square stock. Then, after assembly, grab your router and shape the edges. The risk with this method is that you'll gouge or splinter parts that are already in place. The best way to avoid disaster is to make a series of shallow passes instead of one full-depth cut.



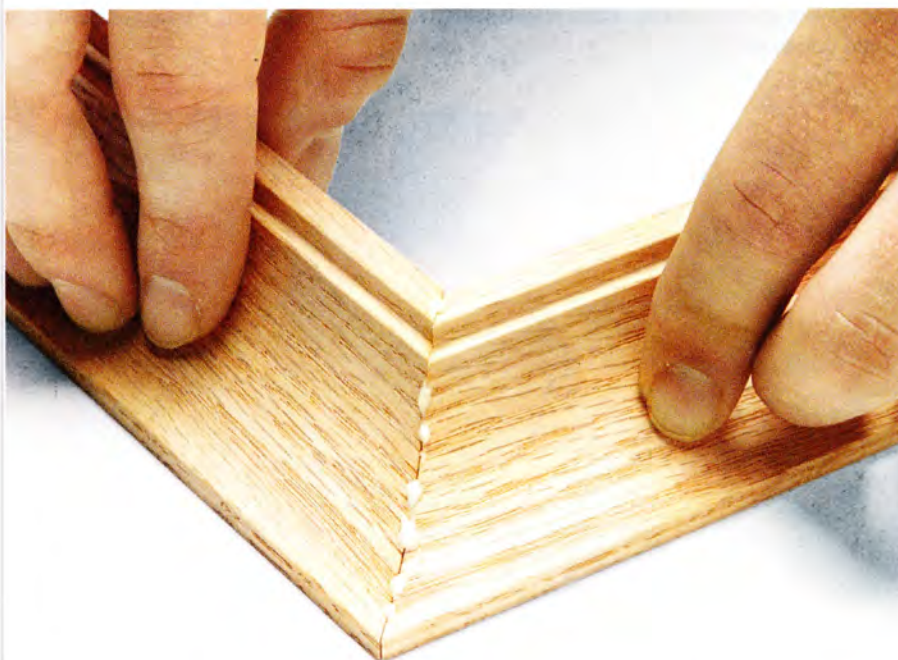
Slow down your glue

It's hard enough to align and clamp miters without rushing to get it done before the glue begins to set (in five to 10 minutes, and even faster in warm, dry conditions). That's why there are slow-setting wood glues, which give you an extra 10 minutes or so.

If you can't find a slow version at your favorite home center, make your own. If you add one part water to 20 parts wood glue, you'll gain about five minutes of working time. The water will also weaken the bond very slightly. So if strength is critical, order slow-setting glue online. Titebond Extend is one common brand.

Rehearse before you glue

A dry run—complete assembly with clamps but without glue—is the best way to ensure a smooth, successful glue-up, whether you're assembling miters or anything else.



CLAMP WITH YOUR HANDS

When you're dealing with small or other hard-to-clamp parts, your hands make the best clamps. Simply rub the glued surfaces together and hold them tightly on a flat surface for about a minute. Let go and allow the joint to set for 30 minutes before handling it.



MICRO-ADJUST WITH PAPER SHIMS

If you've ever tried to adjust the angle of your miter saw by one-tenth of a degree, you already know how hard micro-adjustments are. Here's an easier way: Slap a few sticky notes on the fence, make test cuts and add or remove sheets until you get exactly the angle you want.



Feel the difference

When you're building a box or frame, the opposite sides have to be *exactly* the same length. To make sure they are, do the touch test: Set the parts side by side and run your finger over the mitered ends. You may not be able to see a slight length difference, but you'll feel it.

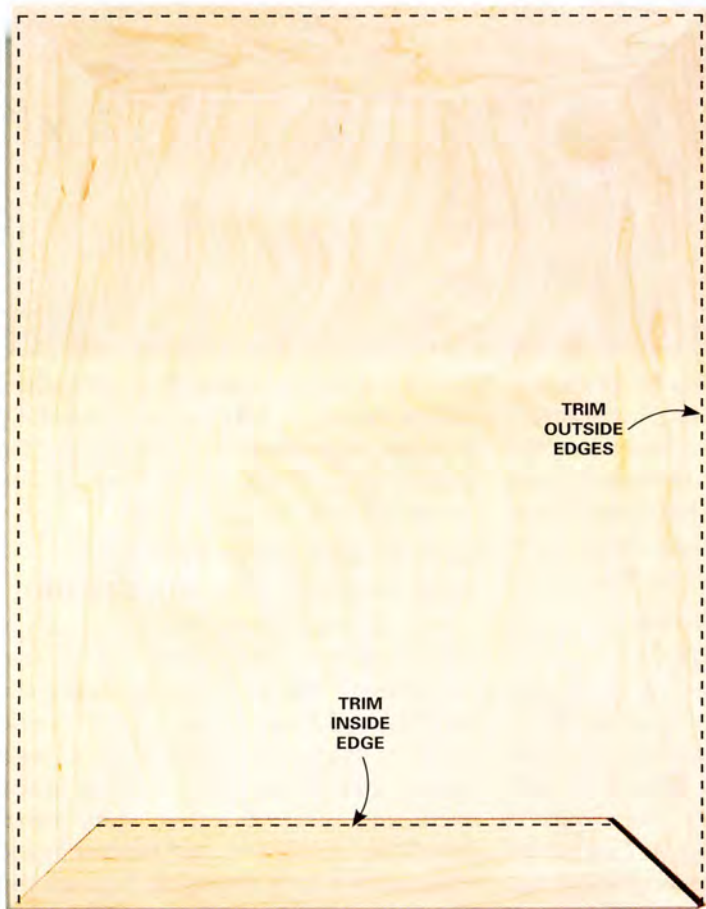
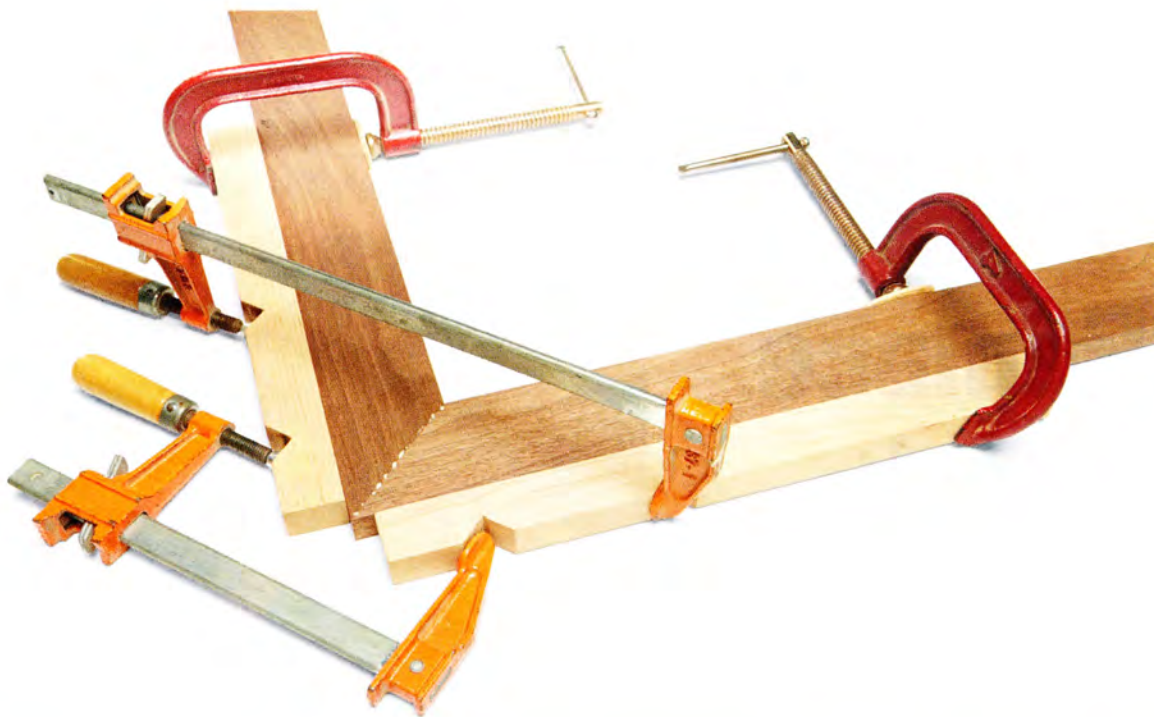


CLOSE UGLY GAPS

You can close a miter gap by rubbing it with a screwdriver shank or any hard, smooth tool. We used the end of a utility knife. That crushes the wood fibers inward to make the gap disappear. Even professional woodworkers sometimes resort to this crude trick.

MAKE YOUR OWN CORNER CLAMPS

This is an old favorite among woodworkers: Clamp on notched blocks, then add a bar clamp or two to squeeze the joint. This allows you to put a lot of pressure on the joint without buying any special clamps. If you're assembling a four-sided project such as a picture frame, join two corners first. Then, after the glue has set, join the two halves of the frame.



'LENGTHEN' A BOARD

Ever cut that last part just a bit too short? There's a solution for that: First, trim off the inside edge of the too-short part. By cutting off the short edge, you effectively make the mitered part longer. Then trim the same amount off the outer edges of the other three sides. Your edging will be a little thinner than you had planned, but nobody will notice.



Bond joints instantly

Trim carpenters have used this system for years: Apply a few dabs of cyanoacrylate adhesive (aka "superglue") to one surface and apply activator (or "accelerator") to the other. Immediately press the parts together and they'll bond in seconds. No waiting, no complicated clamping setup. Activator is sometimes sold separately (\$5 and up), sometimes with the glue. Look for it at home centers or shop online; rockler.com carries a good selection of glues and activators.



Replace a sink strainer

Kitchen sink basket strainers/drain assemblies work great when they're new. But with daily use and cleaning, the chrome or painted finish starts to wear off. The basket strainer stopper may also start leaking. Once that happens, you can forget about soaking pots and pans overnight. You might think that the solution is to buy a new basket strainer. Good luck finding one that fits and seals. You can buy a "universal" replacement that'll work as a strainer. But it usually doesn't seal well because it's not an exact fit. So your best option is to replace the entire drain assembly.

You can replace the drain assembly yourself, but it's much easier with two people. You'll save about \$100 in labor. The hardest part of the job involves removing the old drain locknut. If your locknut comes off easily, you can finish the entire job in less than an hour. However, a drain locknut that's corroded is tougher to deal with. We'll show you two quick ways to conquer stubborn locknuts. And we'll offer some tips on shopping for a new, longer-lasting basket strainer/drain assembly. Let's get started.

Remove the drainpipes

Place a bowl under the P-trap. Then use slip-joint pliers to loosen the com-



pression nuts at the drain tailpiece and both nuts on the trap. Completely unscrew the tailpiece nut and swing the P-trap out slightly. Then unscrew the trap nuts completely and remove and drain the entire trap and tailpiece assembly to give yourself more working space.

Loosen and remove the drain locknut

Crawl under the sink and check for corrosion on the large drain locknut. If it's corroded, spray all around the nut with rust penetrating oil and allow it to soak for at least 15 minutes. Then have a friend hold the drain so you can loosen the locknut (**Photo 1**). Loosen the locknut with a hammer and chisel (**Photo 2**). If the locknut won't loosen or the entire drain spins and your helper can't hold it, cut it off (**Photo 3**).

If you don't have either a helper or a rotary cutoff tool and you've tried but can't loosen the locknut yourself, there's still another option to try. Head to the home center or hardware store and fork

over about \$25 for a sink drain wrench to loosen the nut and a plug wrench to help hold the drain (**Photo 4**). Once you get the locknut off, pull the entire drain up and out of the sink.

Clean the sink flange and install the new drain

Scrape off the plumber's putty or silicone from around the drain flange in the basin and under the sink. If the old drain was caulked with silicone, use silicone remover to clean it. Then apply a fresh bead of silicone around the flange in the basin and insert the new drain. Next, install the new O-ring and locknut in the order shown here (**Photo 5**). Tighten the locknut until the rubber O-ring compresses slightly. Then reassemble the trap and tailpiece and attach it to the new sink drain. Clean off any excess silicone in the basin with a paper towel. Then clean off the O-ring and locknut.

Test for leaks by filling the sink with water and releasing it while you check the pipes under the sink.

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DIY TIP GENIUS



1 HOLD THE DRAIN TO LOOSEN THE LOCKNUT

Jam needle-nose pliers into the crosspiece section at the bottom of the drain. Have your friend spread the pliers and hold it tightly in the drain to prevent it from turning while you loosen the locknut.



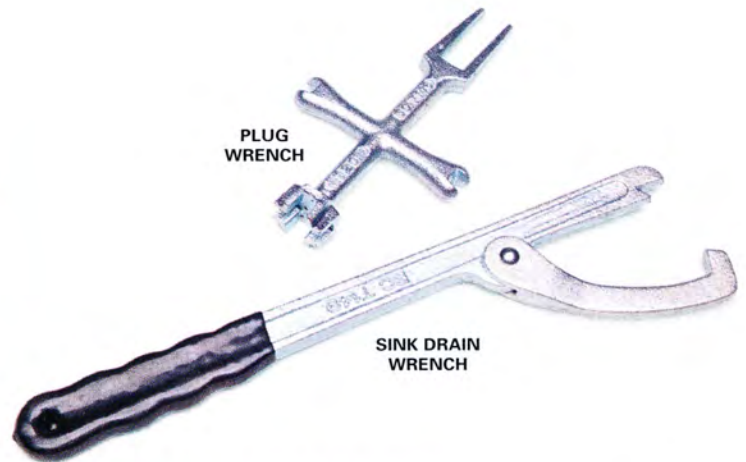
2 LOOSEN THE LOCKNUT

Place the chisel tip against a locknut "ear." Then smack the chisel with a hammer. Move the chisel to the next ear and repeat until the nut spins by hand.



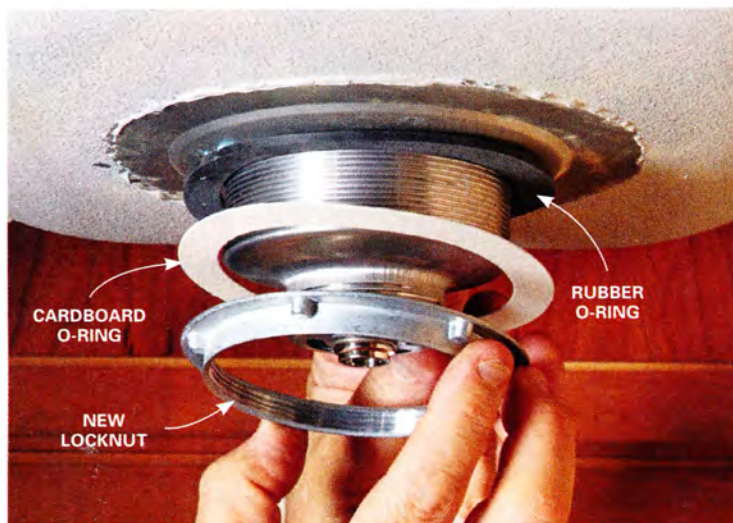
3 DRASTIC MEASURES FOR STUCK NUTS

If all else fails, chuck a metal cutoff wheel into a rotary tool and cut the locknut. Cut until you reach the cardboard ring above the nut. Don't cut into the sink. If the nut still doesn't spin, fit your chisel into the cut area and smack it with a hammer to crack it open. Wear eye protection.



4 NO HELPER? NO PROBLEM!

You can buy these tools for \$25 at any home center. Loosen the locknut with the sink drain wrench while you hold the drain with pliers and the plug wrench.



5 INSTALL THE NEW STRAINER

Slide the rubber O-ring on first. Then add the cardboard O-ring and the locknut. Tighten the nut until it starts compressing the rubber O-ring.

BUYING TIPS

You have to spend at least \$50 to get a high-quality strainer/drain assembly with a durable finish and a reliable stopper mechanism. The best strainers have either a spin-lock or a twist-and-drop style stopper. The spin-lock stopper doesn't have any parts that can wear, but screwing it in and out can be annoying. The twist-and-drop style is much easier to use but requires occasional O-ring replacement.

Avoid push-in style strainers that have a nonreplaceable neoprene stopper or a plastic knob. The plastic parts break and can lose their sealing ability if exposed to boiling water.





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TOUCH UP A VINYL-CLAD FENCE

Vinyl-clad chain-link fence keeps its appearance for a long time. But the vinyl can get scuffed and worn where the gate latch locks onto the post. The repair is a little tricky because you're trying to paint over vinyl and metal. If you use a spray paint formulated for metal, it won't bond well to the vinyl. Instead, coat the damaged area with spray paint specifically designed for plastic (Krylon Fusion is one brand).

Start by cleaning the damaged area and beyond with a household spray cleaner. Then rough up the surface (**Photo 1**). Finish the repair with special plastic paint (**Photo 2**). Let the repair dry at least 24 hours before operating the gate latch mechanism.



1 SAND THE AREA

Lightly scuff the vinyl and metal with 120-grit sandpaper. Then wipe with a tack cloth.



2 COAT WITH PAINT

Apply a first coat of plastic paint and allow it to set up the recommended time shown on the label. Then apply a finish coat.

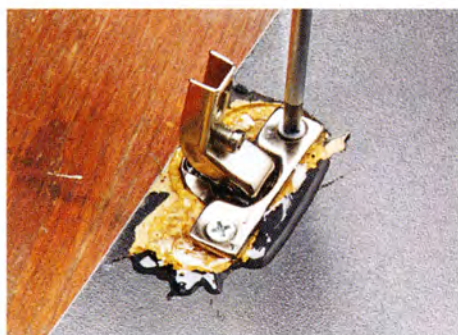
Repair a broken-out hinge

It doesn't take much of a blow to break hinge screws out of a particleboard door. If the screws just stripped and pulled out cleanly, you could fill the hole with toothpicks and wood glue, then reinstall the screws. But if the surrounding particleboard has broken away, it's quicker to fill the void with gap-filling glue (Loctite Go2 Glue is one choice).

Start by removing the hinge and preparing the damaged area (**Photo 1**). Apply petroleum jelly to the movable portions of the hinge to protect them from the glue. Then scuff the cup portion of the hinge with sandpaper where it will contact the adhesive. If you're using polyurethane adhesive, dampen the hinge with water to activate the glue. Apply glue to the damaged area and immediately install the hinge and screws (**Photo 2**). Secure the hinge with weights or clamps until the glue dries. Then reinstall the door.



1 PREP THE DAMAGED AREA
Chisel out the damaged wood and enlarge the area slightly to give the adhesive more area to grip. Remove all loose chips and blow off any remaining dust.



2 FILL THE VOID WITH GLUE
Squeeze in enough glue to fill the broken-out screw holes and coat the cup area. Then press the cup into the opening until the glue oozes out. Drop the screws into the hinge holes and tighten the ones that still have some wood to bite into.

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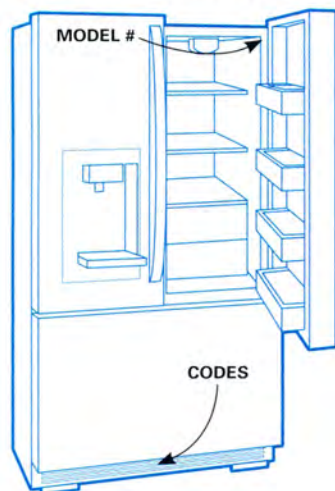
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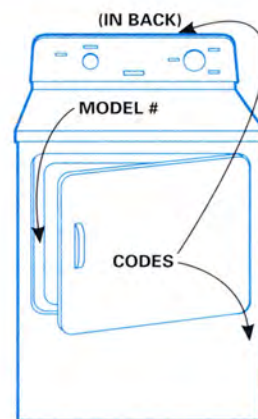
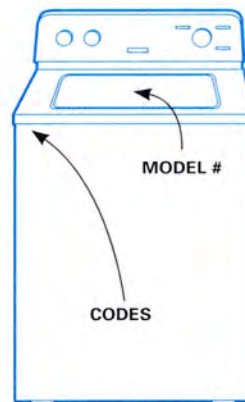
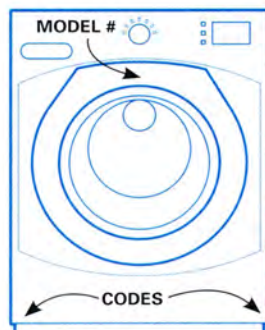
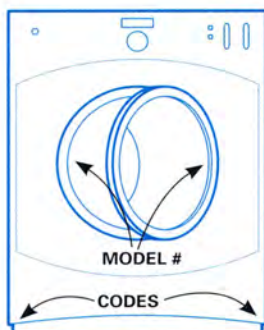
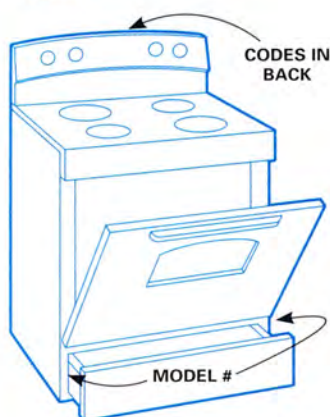
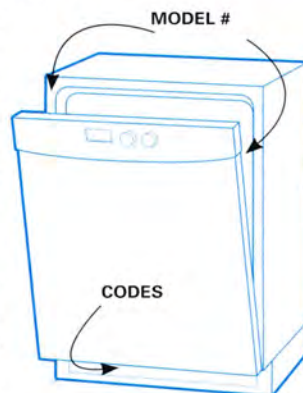
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FIX COMPUTERIZED APPLIANCES YOURSELF



Many newer appliances include computerized touch pads and control boards. You may think they're too complicated to repair yourself. Wrong. They're actually easier to work on because the computer does all the diagnostic work for you. Once the computer detects a problem, it stores a fault code in memory. All you have to do is put the computer into readout mode and consult the fault code chart to discover which part failed. Fortunately, most manufacturers pack the code retrieval procedure and code translation information right inside the machine.

The trick is to find them. The diagrams here show typical locations. Remove the cover panel and look for the fault code instructions in a plastic bag. Follow the instructions to put the computer into code retrieval mode, then count the blinks or read the fault code from the display. Once you learn which part failed, copy the model and serial number off the tag and buy a replacement part.



FIND THE MODEL NUMBER AND THE FAULT CODE SHEET

Here are the typical locations on various appliances. (You may need to remove a cover panel to find them.) With the fault codes, the appliance diagnoses itself!

Replace a rain cap

High winds, sleet and plain old corrosion can cause a rain cap to break apart, rattle and leak water into your home. If you feel comfortable climbing up on your roof, you can replace the old one yourself for about \$40. That'll save about \$150 in labor from an HVAC service company.

You can buy a new rain cap and a sheet metal crimping tool at any home center. Flues are usually 5 or 6 in. in diameter, so buy both size caps and return the unused one. You'll also need three hex-head or Phillips self-drilling 1-in. sheet metal screws and a drill and bit.

Remove the old rain cap and toss it. Select the correct cap and check the fit (**Photo 1**). Then secure the new cap (Photo 2).



1 CHECK AND ADJUST THE FIT

Slide the new cap into the flue. If the stub section on the cap is too large, crimp it with a crimping tool.



2 LEVEL AND SECURE THE CAP

Plumb the cap so it fits squarely in the flue and secure it with one sheet metal screw. Recheck that the cap is plumb and install two more screws.

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Top Ten TIPS

BY JEFF GORTON

editors@thefamilyhandyman.com

ART DIRECTION ELLEN THOMSON • PHOTOGRAPHY TOM FENENGA



How to paint a ceiling

Ceilings present some unique painting challenges. For starters, they're usually much larger than any single room wall and are often illuminated with raking light that accentuates even the smallest flaw in the paint. Add to that the challenge of working overhead and things can get messy in a hurry. That's why we called in Bill Nunn, one of our favorite painting consultants, to help you out with his best ceiling painting tips.



MEET THE PRO

Bill is the owner of William Nunn Painting, which specializes in classic old home painting. Bill has been painting for more than 35 years.

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1 Use a stain-blocking primer to cover flaws

Roof leaks, overflowing sinks, tobacco smoke and big spills can all leave ugly ceiling stains or dinginess that is impossible to conceal with plain old paint. But cover the stain with a coat of stain-blocking primer and your troubles are over.

Bill's favorite is white pigmented shellac. You can buy spray cans of pigmented shellac, but Bill prefers brushing it on. Just don't forget to pick up some ammonia or denatured alcohol to clean your brush. If you're painting over a ceiling that's yellow from smoke, roll a coat of shellac over the entire ceiling before painting with latex.



2 Sand before you paint

Over time, and as the layers of paint build up, bumps and crud can get stuck to the ceiling. On untextured ceilings, Bill starts with a quick once-over sanding with 100-grit drywall sanding paper. This helps ensure a perfectly smooth paint job and increases paint bonding. The easiest way to do this is with a sanding pole. When you're done sanding, wipe the ceiling with a damp sponge to remove the dust.



3 Cut in before you roll

Cutting in before you roll allows you to cover most of the brush marks with the roller. Bill likes to carefully brush paint along the edge of the ceiling a section at a time. He'll cut in about 10 linear ft. and then roll that section. This method has a couple of advantages over cutting in the entire room at once. First, the cut-in section will remain wet until you roll, so it blends in better. Bill says it's also simply less boring to alternate between cutting in and rolling.

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DIY TIP GENIUS



4 Roll both directions

There are a few tricks to getting a smooth, consistent coat of paint on the ceiling. First, work in sections about 5 or 6 ft. square. Move quickly from one section to the next to make sure the paint along the edge doesn't dry before you roll the adjoining section. This is called "keeping a wet edge" and is the key to avoiding lap marks. Bill says you'll get the best coverage by immediately rerolling each section at a right angle to your first roller direction as you go.



6 Lap your cut-in onto the walls

If you're planning to paint the walls too, lap the paint onto the walls a little bit. Then when you paint the walls, you can err on the side of leaving a little ceiling color showing when you cut in and it won't be noticeable. Some painters like to skip this cutting-in step and save time by mashing the roller into the corner instead. Bill objects to this method because it's sloppy, builds up excess paint in the corner and can leave runs or a thick paint line on the wall.

5 Buy special ceiling paint

While there are exceptions, in general you'll get the best results with paint that's formulated for a ceiling application. For a ceiling, you want paint that doesn't spatter, has a long open time (dries slowly), and is flat instead of glossy. Most ceiling paints are formulated with these qualities. And of course you can have ceiling paint tinted if you want a color other than "ceiling white."



Clear the room

Bill prefers to move everything out of the room and cover the floors with drop cloths before painting a ceiling. But if this isn't possible, he groups furniture in the center and covers it with painter's plastic. Sometimes it may be necessary to make two or more small groups so that you can reach over them with the roller.



7 Don't be afraid of color

You may not want to paint your ceiling yellow, but don't be afraid to deviate from plain old white. Bill says painting the ceiling a color can make a small room seem bigger, or a room with a high ceiling seem more intimate. Plus, it's just more interesting. Ask at any full-service paint store for help in choosing complementary wall and ceiling colors, or search online for examples of rooms you like.



8 You don't need an expensive pole

Bill is sort of old-school when it comes to equipment and actually prefers low-tech solutions. You can buy all kinds of fancy extendable paint poles, but Bill prefers a simple wooden broom handle. And his reasons are simple. They're cheap and light and do the job.

9 Use a thick, premium roller cover

Here's a tip that applies to most paint jobs but is even more important for ceilings. You want to get as much paint on the ceiling as you can in the shortest amount of time possible while minimizing spatters. To do this, you need the best roller cover you can buy. Bill prefers a 1/2-in.-nap lambswool cover. If you've never tried a lambswool



10 Roll gently on textured ceilings

Painting textured ceilings is a bit of a crapshoot. If the texture has been painted over already, it's probably safe to paint again. If the texture has never been painted, there's a risk the water in the paint could loosen the texture, causing it to fall off in sheets. A lot depends on the quality of the texturing job. If you have a closet or other inconspicuous area, do a test by rolling on some paint to see what happens. If the texture loosens, painting over the larger ceiling is risky.

Bill has a few tips for painting over texture. If possible, spray on the paint—it's less likely to loosen the texture than rolling. But spraying in an occupied house is usually impractical. Bill says the best tip for rolling on paint is to avoid overworking the paint. Just roll the paint on and leave it. Don't go back and forth with the roller, as this is likely to pull the texture from the ceiling. If the ceiling needs another coat of paint, wait for the first coat to dry completely. Then roll another coat perpendicular to the first one using the same careful technique.

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PRO tips

BY MARK PETERSEN

editors@thefamilyhandyman.com

Working with PEX

There are a lot of reasons why PEX (cross-linked polyethylene) plumbing pipe is so popular. PEX is less expensive than copper. It can be run in long lengths without any fittings, which reduces the chance of leaks. It's less likely to burst in low temperatures. And the biggest advantage of PEX is that it's super easy to work with. But just because it's easy doesn't mean you can't screw it up. We asked Les Zell, our resident expert, to share some tips, preferences and techniques to help your next PEX install go as smoothly as possible.

MEET THE EXPERT



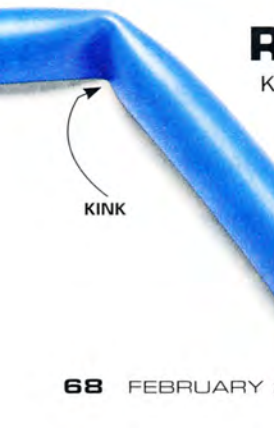
Les Zell has been a plumber for almost 30 years. He is the owner/operator of Zell Plumbing & Heating in Hudson, Wisconsin.



ART DIRECTION ELLEN THOMSON • PHOTOGRAPHY TOM FENENGA

Repair or replace kinks

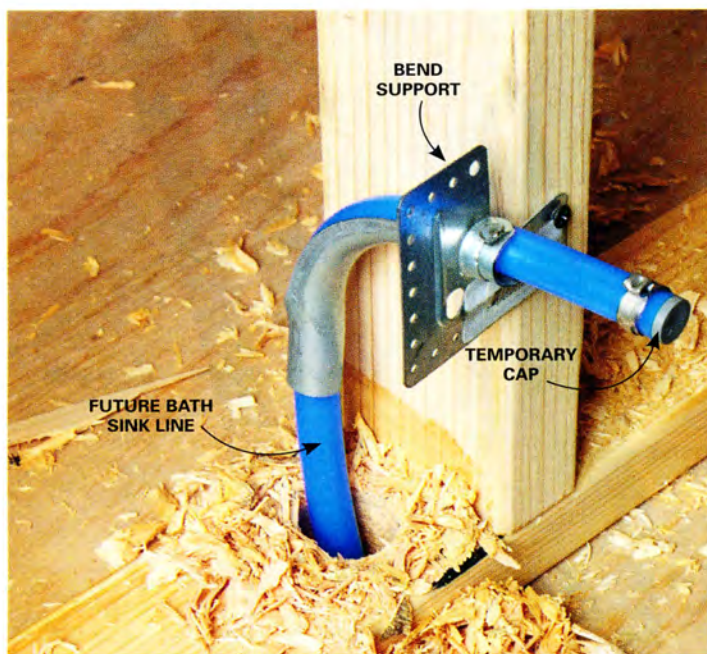
Kinks happen. You can repair kinks with a heat gun, but PEX tends to rekind in the previously kinked spot, especially if the pipe needs to make a bend at the kinked location. It's best to cut kinks out and use the shorter sections of pipe elsewhere. If you get a minor kink in the middle of a long, straight run and you don't want to cut it out, heat the pipe with a heat gun and then cover the damaged area with a hanger or abrasion clip (see "Protect Your PEX," p. 69). That will help the pipe keep its shape.



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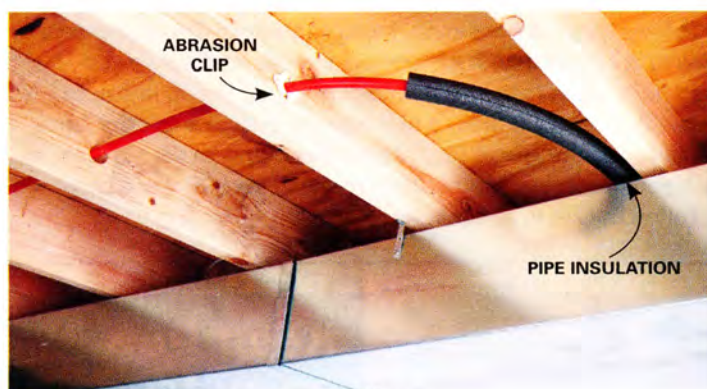


DIY TIP GENIUS



INSTALL PEX DIRECTLY TO THE FIXTURES

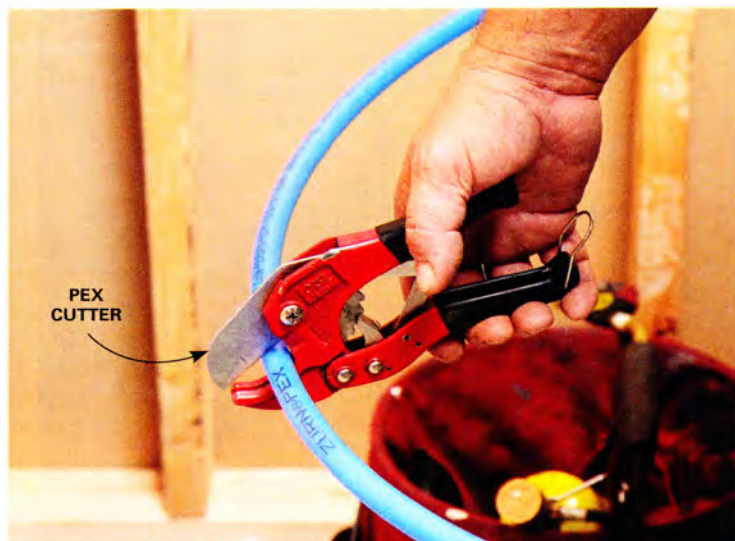
Les prefers to run PEX directly to the fixtures so he won't have to bury fittings behind the walls. It's hard to keep PEX perfectly straight when PEX exits the wall, so another option is to use a 90-degree copper stub-out when you run a line to a toilet or other fixture where your shutoff valve will be visible.



Protect your PEX

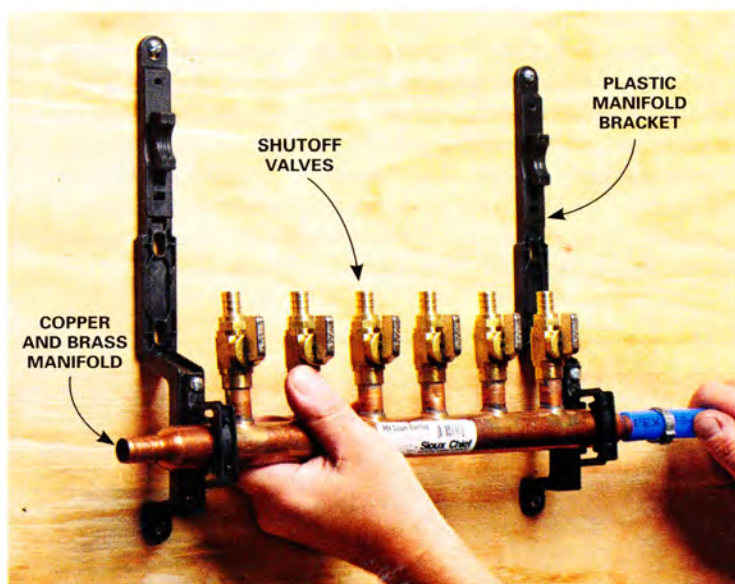
PEX expands and contracts with changes in temperature, which causes the pipes to move back and forth. Several years of even the slightest movement can wear a hole in PEX pipes, especially if they're rubbing against something abrasive.

If your pipe is in contact with a joist, duct, electrical box or steel stud, or it is passing through a block wall or concrete slab, it needs to be protected. You can protect your pipe with abrasion clips, cover the pipe with inexpensive pipe insulation, or enclose it with a larger pipe. Pipes that are encased in concrete (for in-floor heating, for example) are OK because the concrete holds them in place. And pipes running straight through wood studs and joists are fine too—just protect the pipe in areas where it bends as it passes through.



Cut it straight

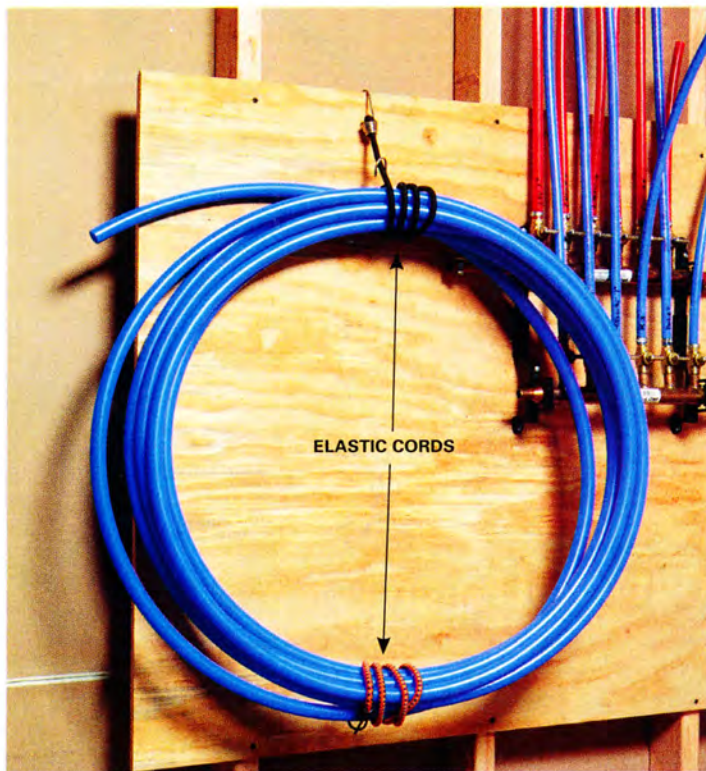
There's no reason to spend a bunch of money on a fancy PEX cutting tool. The one our expert is using costs about \$12. Whether you use a \$100 cutter or just a utility knife, the most important thing is to cut straight. A pipe that is cut at an angle won't fit properly against fittings, and that increases the risk of leaks.



HOME RUNS ARE BEST

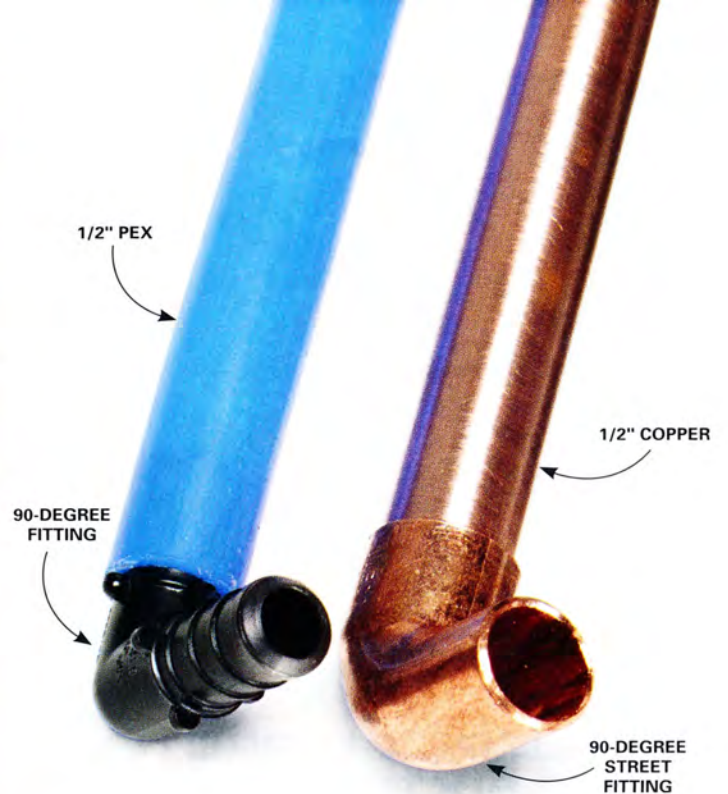
You can install PEX with main lines and branches to each fixture, but "home runs" are better. A home run is one line that runs directly to a fixture, starting at a manifold (above). Home runs require more piping but deliver a stronger and more consistent water flow. Also, installing home runs is fast and requires only two connections (one at the manifold and another at the fixture end), which reduces leaks.

You can also use a hybrid system where you run 3/4-in. hot and cold lines to a set of fixtures—for example, in a bathroom—and install a smaller manifold behind an access panel. Then make short runs of 1/2-in. lines to each fixture. Another cool thing about home runs is that each fitting has its own shutoff at the manifold. That means you can shut off just that fitting to do some work—you don't have to shut off the water to the whole house.



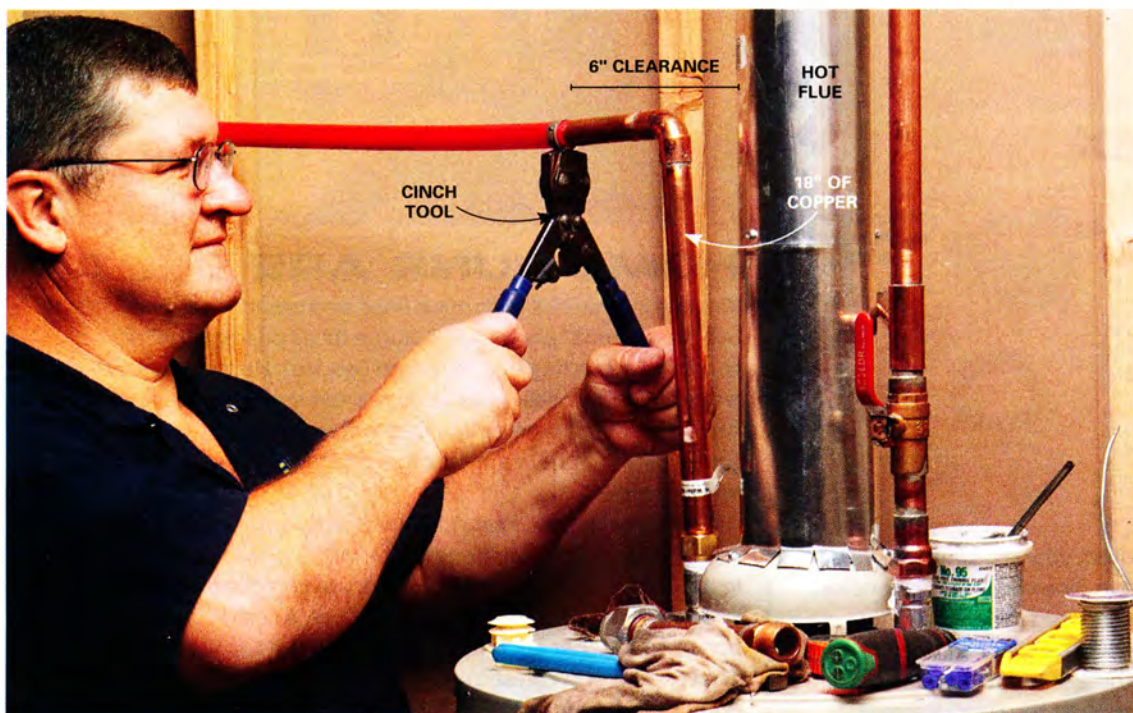
CONTROL YOUR COIL WITH AN ELASTIC CORD

One complaint about working with PEX is that the coils have a mind of their own. As soon as the banding is removed from the coils, they tend to explode out in every direction. Les's tip is to use bungee cords to help keep your coils in check. He leaves the cords on and unrolls just the amount he needs. If your coil comes wrapped in plastic, don't remove it. Sometimes you can just feed out pipe from the innermost section of the coil. If you have just a few smaller runs or short lengths to install, buy sections of straight pipe—it's a lot easier to work with.



Upsize to avoid poor pressure

The inside diameter of 1/2-in. PEX is smaller than that of 1/2-in. copper (and even smaller with fittings). If you're tearing out copper and replacing it with the same size PEX pipe, the water flow to the fixtures may be noticeably lower when you're done. If you're working on a house that has less than 45 lbs. of pressure or a flow rate of less than 4 gallons per minute, make sure you install home runs (see p. 69), and consider going up in size to 3/4-in. pipe. A simple way to test water pressure is to hook up a hose bib pressure gauge (\$12 at home centers) to your spigot. To check your flow rate, just see how many gallons of water flow into a 5-gallon bucket in one minute.



Keep PEX away from hot stuff

PEX is plastic, and plastic melts. So keep your PEX pipes away from hot stuff. Codes commonly require PEX to be at least 18 in. away from the water heater and 6 in. away from single-wall flues on gas water heaters. And stay well clear of furnace flues, wood-burning stove pipes and any other item that gets hot.



Warm up cold pipes

Our expert, Les, knows a plumber who did a job in northern Wisconsin in the middle of winter. The building had no heat, and all the pipes and fittings were freezing cold. When the furnace was fired up and the water turned on, they sprang dozens of leaks. Most PEX manufacturers recommend you work with pipe at temperatures above freezing. The whole length of the pipe doesn't need to be warm, just wherever you make a connection. You can heat those cold pipes and fittings with a heat gun or hair dryer, leave them in a warm vehicle for a while or keep fittings in your pocket. Heck, you can even warm a pipe in a thermos of hot water.

Cinch clamps are easy

There are many different ways to connect PEX to fittings, but Les prefers cinch clamps. They're readily available and relatively inexpensive, and you know when they're installed properly because the tab of the clamp will be visibly pinched.

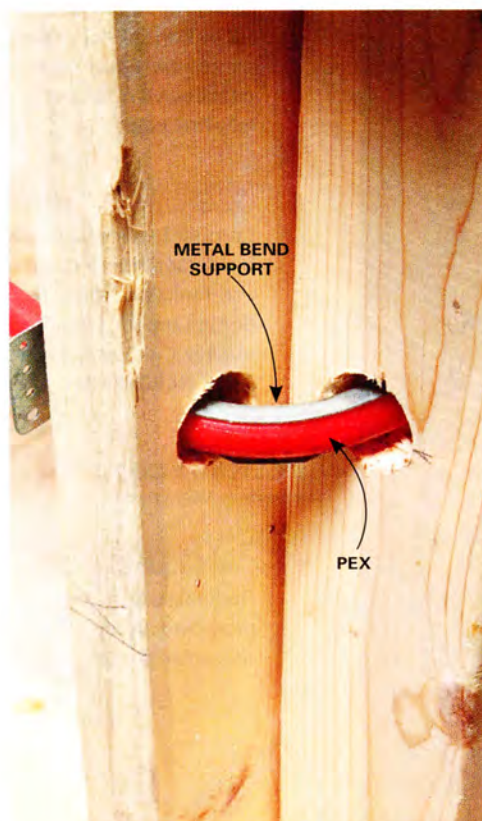


USE THE SAME STUFF

There are several different manufacturers of PEX. It is very important that you know which brand of pipes you're working with and install only that manufacturer's connectors and fittings. If you mix and match materials, you will void your warranty and may fail your inspection. Worst-case scenario: You'll end up with leaky pipes, water damage and extremely unhappy homeowners. Not all products have recognizable markings on them, so leave a few of the packaging labels on-site to appease the inspector and for future reference.

AVOID KINKS

PEX's flexibility makes it easy to work with. It can be bent around pretty sharp corners without the need for an elbow fitting. But if you try to bend it too much, you'll end up kinking it. Installing a bend support will prevent this, and it will also protect the pipe from abrasion.



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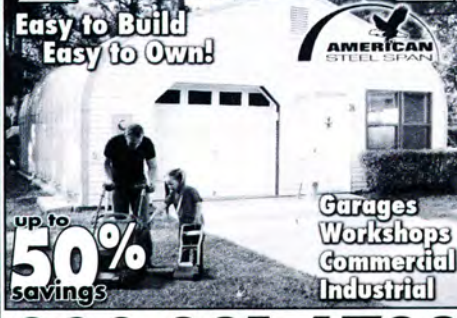





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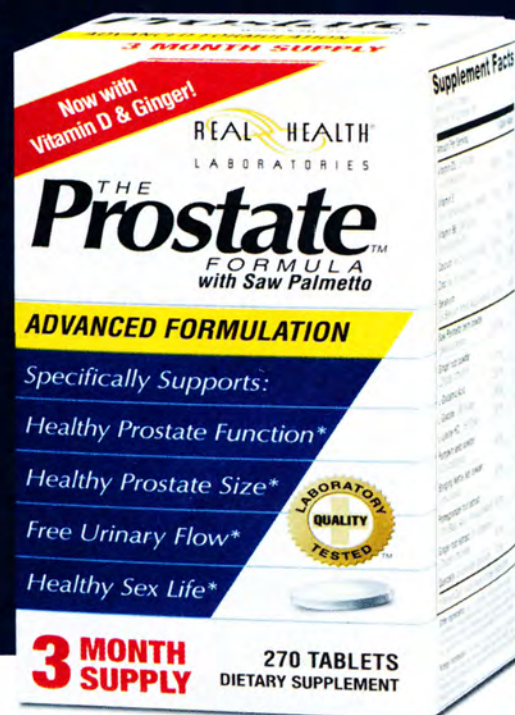
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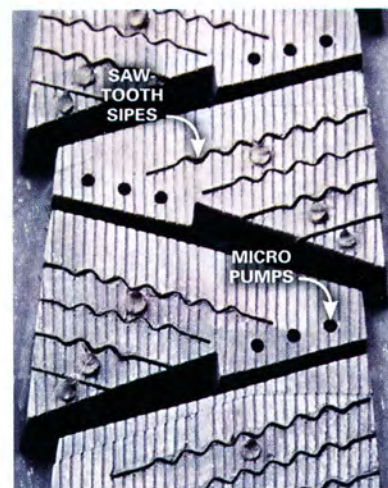
The case for winter tires

Winter tires are supposedly much better than even the best all-season tires for winter driving. We wondered if that was true and if they were worth the extra cost and hassle. So we contacted four large tire manufacturers—Goodyear, Michelin, Bridgestone and Cooper Tire—to find out exactly what drivers get for their money.

The manufacturers pointed us to independent tests showing how winter tires compare to all-season tires. The test results were impressive. But the out-of-pocket expenses are equally as impressive. So we crunched the numbers to find out exactly how much they cost per year. Here's what we found.

Not just for snow

Winter tires perform much better than the “snow” tires you may remember (if you're old enough). They work better in snow, ice, slush and mud and on cold, dry pavement. The rubber compounds are entirely new. Most manufacturers include silica, and some spruce up the formula with traction bits and hollow “cells” that squeegee and suction water off the road. Tread designs are far more aggressive to provide better acceleration and shorter stopping distances (**Photo 1**).



1 TREAD THAT SAWS AND PUMPS

Winter tires have more sipes (cuts in the tread) than all-season tires to squeegee more water off the road. Saw-tooth sipes provide more surface area and cut into snow and slush better than straight sipes. The “micro pump” holes in the tread act like plungers to suck water off the road and then spit it out as the tire rolls.

Increased performance on snow

Since snow-on-snow contact creates far more traction than rubber on snow, winter tires are designed to grip and hold more snow. That means better (and faster) acceleration and shorter stopping distances. An independent test by Trierack.com shows a 33 percent improvement in acceleration over all-season tires (and that's with an AWD vehicle). Plus, the test tires stopped 30 ft. shorter than the all-seasons (**Figure A**). That's a huge difference—enough to avoid a serious accident or a fender bender.

Better performance on ice

All-season rubber compounds literally skate on ice. But winter tires are made with softer rubber compounds and added silica to give them more flexibility and grip on ice. And the special tread removes more water from the ice. The test results show that winter tires outperform all-season tires on ice, too.

Trierack.com used an indoor ice rink and timed the acceleration from a dead stop and measured stopping distances from 10 mph (**Figure B**). Winter tires accelerated faster. When taking a 90-degree turn at 10 mph, the car with winter tires stayed within the marked driving lane, while the car with all-season tires skidded out. That kind of cornering performance can mean the difference between avoiding an accident and causing one.

Cost vs. benefits

A set of four winter tires costs \$600 or more, depending on your wheel size. If you have the tires mounted on your existing wheels, you'll have to pay a shop to swap them each spring and fall. Most shops charge about \$18 apiece to demount your all-season tires, mount the winter tires, balance and install them. However, if you buy an extra set of wheels and tire pressure sensors (\$480 per set), you'll save at least \$50 on each changeover. Don't think you can skip the tire pressure sensors—the shop can't legally install wheels without tire pressure sensors if your vehicle was already equipped with them.

Sure, winter tires cost a lot. But consider that you're getting a lot for your money. When you factor in the better stopping distance and handling in turns, it's easy to see how winter tires could prevent an "at-fault" accident. If your collision deductible is in the \$500 to \$1,000 range, winter tires could actually pay for themselves in a single season if they keep you out of an accident.

Here's another way to analyze the costs. Winter tires last about five years or 35,000 miles. Those are miles you won't be putting on your all-season tires. So if you go the full monty and buy new wheels, the true cost of winter tires comes out to about \$150 per year for the first five years. Then if you buy a second set for those same wheels, the cost drops to just \$65 per year. We think it's worth the relatively small annual cost to get the extra stopping power and better handling in turns that can help you avoid an accident.

Tire manufacturers make multiple winter tire models for specific winter conditions. So get expert advice from your local tire dealer to match the tire to your vehicle, your climate and your driving habits.

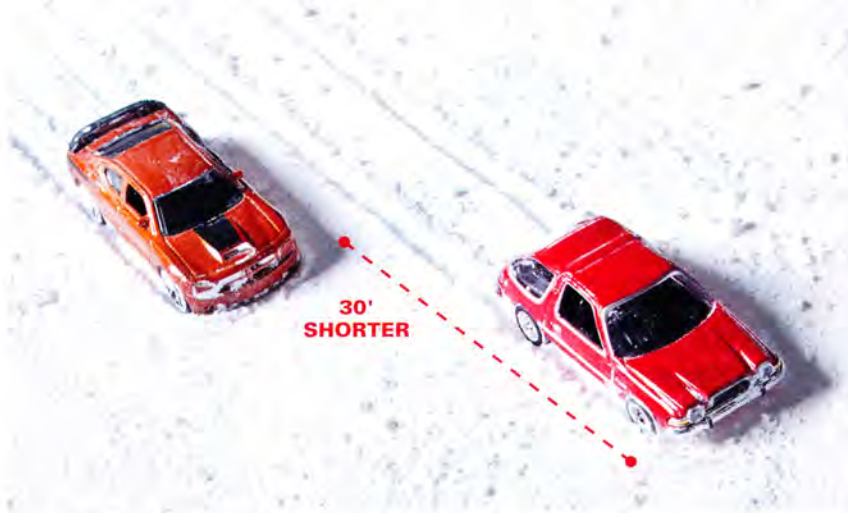


Figure A Winter tires stop sooner on snow

In one test, vehicles accelerated to 30 mph, and both drivers slammed on their ABS brakes at a marked spot. The car equipped with winter tires stopped 66 percent faster (30 ft. shorter) than the vehicle equipped with all-season tires.



Figure B Winter tires grip better, too

In the same test, the car with winter tires accelerated 44 percent faster and stopped 48 percent faster (18 ft. 8 in. shorter) than the car with all-season tires.



BUY EXTRA WHEELS

It's more cost effective to mount winter tires on a set of extra wheels (including pressure sensors). You'll save time and money on the twice-yearly tire swapping.

Save money on the changeovers

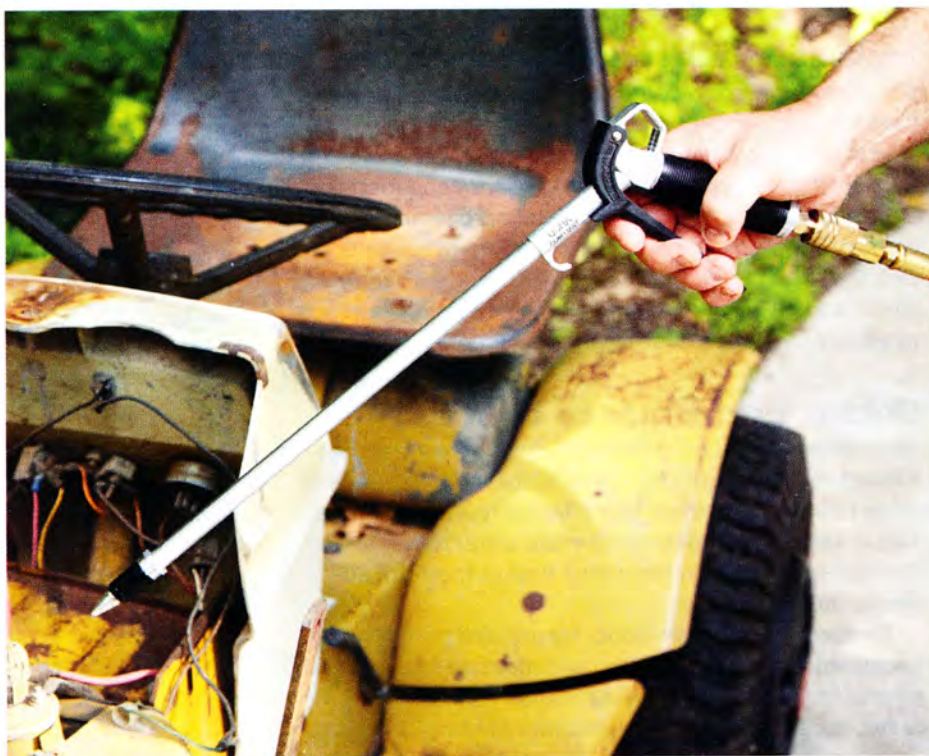
Mounting winter tires on a second set of wheels saves money over swapping tires on a single set of wheels. But you can save even more if you negotiate a package deal with the tire shop. Get a price for the tires, wheels, sensors and free seasonal mounting. If your shop offers a "Tire Hotel" service to store your off-season tires, ask them to throw that into the package as well. That way you won't have to haul the off-season tires back and forth or store them in your garage.



Kick up a dust storm

Most blow guns have a pinhole-size opening. That's fine for blowing away small wood or metal chips. But these Typhoon variable-flow blow guns have multiple openings and a tapered tip that develops 2.1 lbs. of thrust. Use one to blow your entire work area or even blast the water off your freshly washed car. It's the most powerful blow gun we've ever seen. And the trigger is a true variable-volume design, not just full on or full off.

Buy the traditional gun for workbench use or the 12-in.-long version to gain some distance between you and the dust cloud you'll kick up. Find them at air tool sellers or online. They cost \$15 and \$20 at tooldiscounter.com.



REBUILD A BOOSTER PACK

Using a battery-powered booster pack is the safest way to jump-start a car because it eliminates the possibility of sparks and alternator damage. But the lead-acid battery inside the pack doesn't last forever. When the battery inside your booster pack stops working, you can rebuild it yourself for a fraction of the price of a new one.

You'll need a 6-in. Phillips or star bit, a drill and a 1/4-in.-drive socket or nut driver set. Once you open the case, remove the

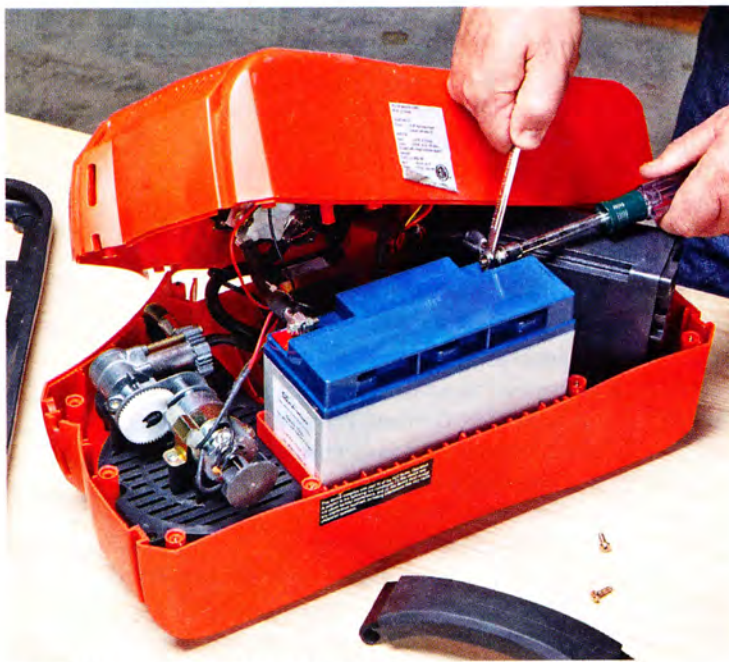
battery and match it up at a local auto parts or battery store. If you want to order a replacement online, measure the battery's overall size and note the terminal style and amp-hour rating. Our replacement battery cost just \$35 online.

To replace your battery, start by removing the decorative trim pieces and screws (**Photo 1**). Then separate the case and swap the batteries (**Photo 2**). Reassemble the case and charge the battery until the charge light turns green.



1 REMOVE THE CASE SCREWS

Pry off the plastic and rubber trim pieces to access the screw holes. Plunge a 6-in. driver bit deep into the holes to remove the screws. Keep track of their locations so you can put them back into place.



2 SWAP OUT THE BATTERY

Remove the cables from the negative battery terminal, noting the locations of the lock washers and the placement of any other wires. Do the same at the positive terminal. Then swap in the new battery, making sure the positive and negative terminals are near the correct cables.

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Patch a tear/hole in leather or vinyl

If you walk around with tools in your pockets, don't be surprised if you tear a hole in your car seat, sofa or easy chair. If a perfect repair is important, call a pro to fix it (about \$150). But if you just want to prevent further tearing, you can fix it yourself with a leather/vinyl repair kit. The kit costs about \$15, and the repair takes only an hour. But don't expect perfection. You'll still see the tear, and you probably won't get a perfect color match. However, this fix will contain the tear and look better than a gaping hole.

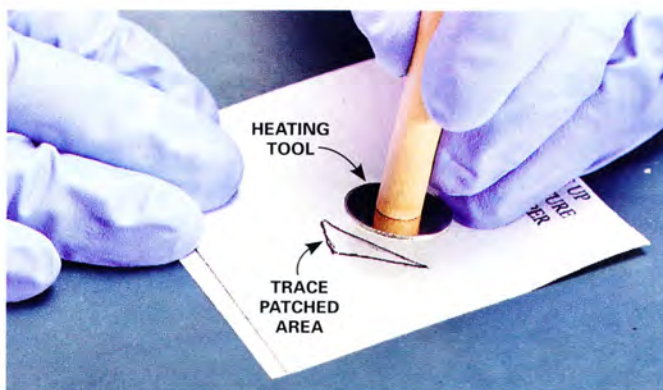
Buy a kit at any hardware store, home center or auto parts store (one choice is the 3M 08579 Leather and Vinyl Repair Kit, \$15). Follow the cleaning instructions in the kit and trim the damaged area to remove any frayed edges. Then cut the backing fabric so it extends under the tear by at least 1/2 in. Glue it in place (**Photo 1**) and let it dry for the recommended time.

Then mix the heat-set colored filler. This is the hardest and most frustrating part of the repair. But take your time and get as close to the color as you can. Apply just enough colorant to fill in the tear. Then cover it with the textured mat and apply heat (**Photo 2**). Let it cool and remove the mat (**Photo 3**).



1 GLUE IN THE REINFORCEMENT FABRIC

Tuck the backing under the damaged area to form a patch. Then apply adhesive around the edges and the middle. Let it dry before adding colorant.



2 CURE THE PATCH WITH HEAT

Touch the heating tool (included with the kit) to the face of a hot clothes iron. Then press the hot tool onto the textured mat and hold it in place.



3 CHECK OUT THE RESULTS

The patch won't be perfect. But it sure beats the look of a tear or burn.

Why can't I drive through a puddle?

Q I've always been told not to drive through big puddles because it gets the brakes wet. But disc brakes spin the water off. Besides, I see people do it all the time. Is that advice outdated?

A Disc brakes do spin the water off. But wet brakes are the least of your worries. What you really need to worry about is damaging your engine. Most late-model cars pull in combustion air from the lowest part of the engine compartment. That ensures the engine gets the coldest, most dense air. If you plow through a puddle and splash water into the intake, it could get sucked up into your air filter. That'll restrict engine breathing and damage the filter. And, if the "puddle" is really deep, you can suck in enough water to fill the cylinders and cause hydro-lock and destroy your engine. It happens far more often than you would think. So why risk \$3,000 in engine damage just to save a few minutes? Find a drier route.

Homemade rust penetrant

Rust penetrant manufacturers are constantly working to improve their products. The latest formulations work better than previous brews. So if you're still using a 10-year-old can of penetrant, you might want to upgrade to the latest formulas from Liquid Wrench or the Specialist Rust Release Penetrant from WD-40.

As great as those new products are, occasionally you can get by with a home brew—a 50/50 mixture of acetone and automatic transmission fluid. It has a strong smell and is far more flammable than commercial products, so make sure you use it outdoors and away from flames. It doesn't work as fast as the commercial products, but if you need rust penetrant in a hurry, it will work.



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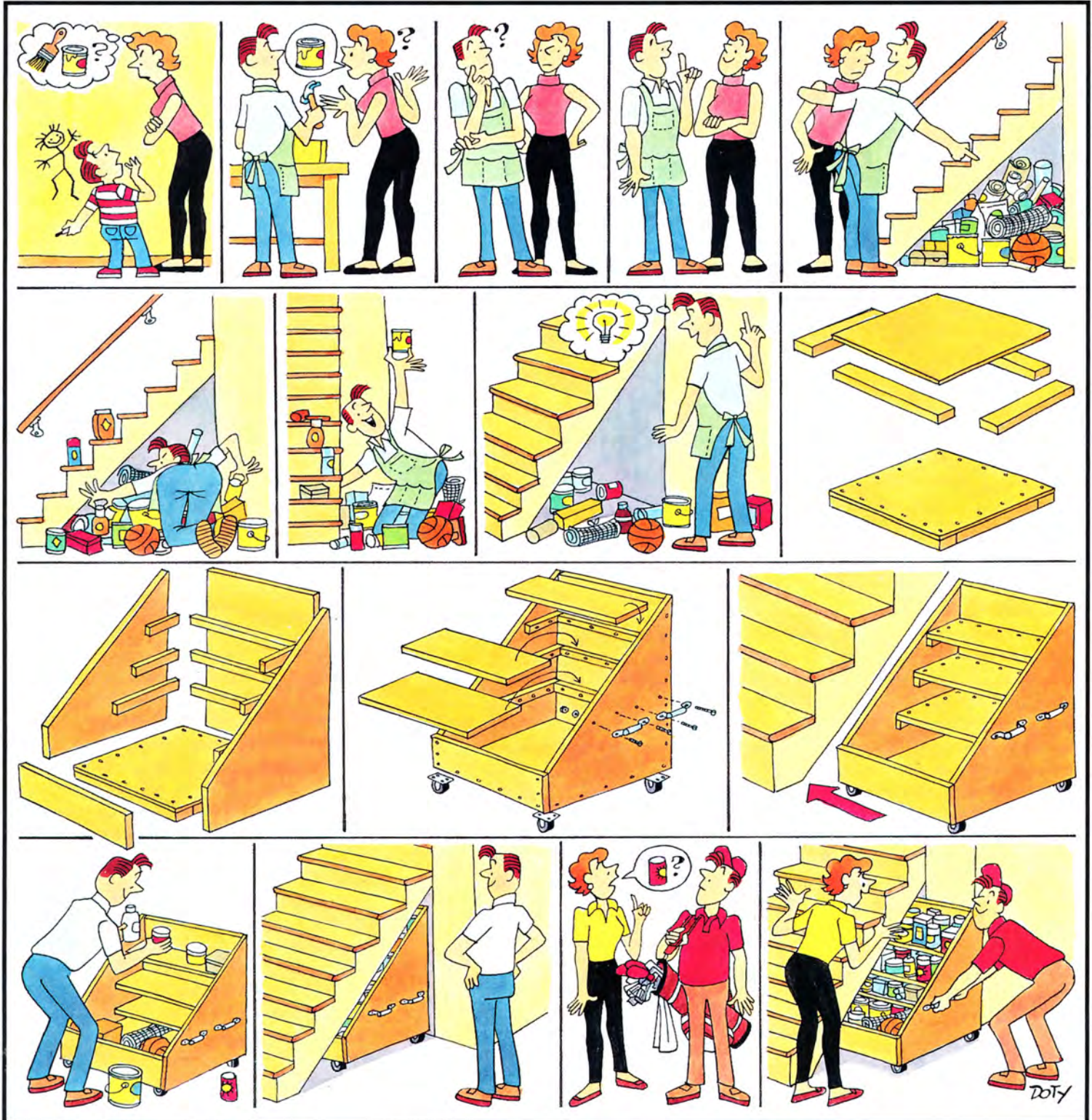
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Under-stairs storage cart



Our thanks go to Chip Allen, Woodbury, MN, for this idea.

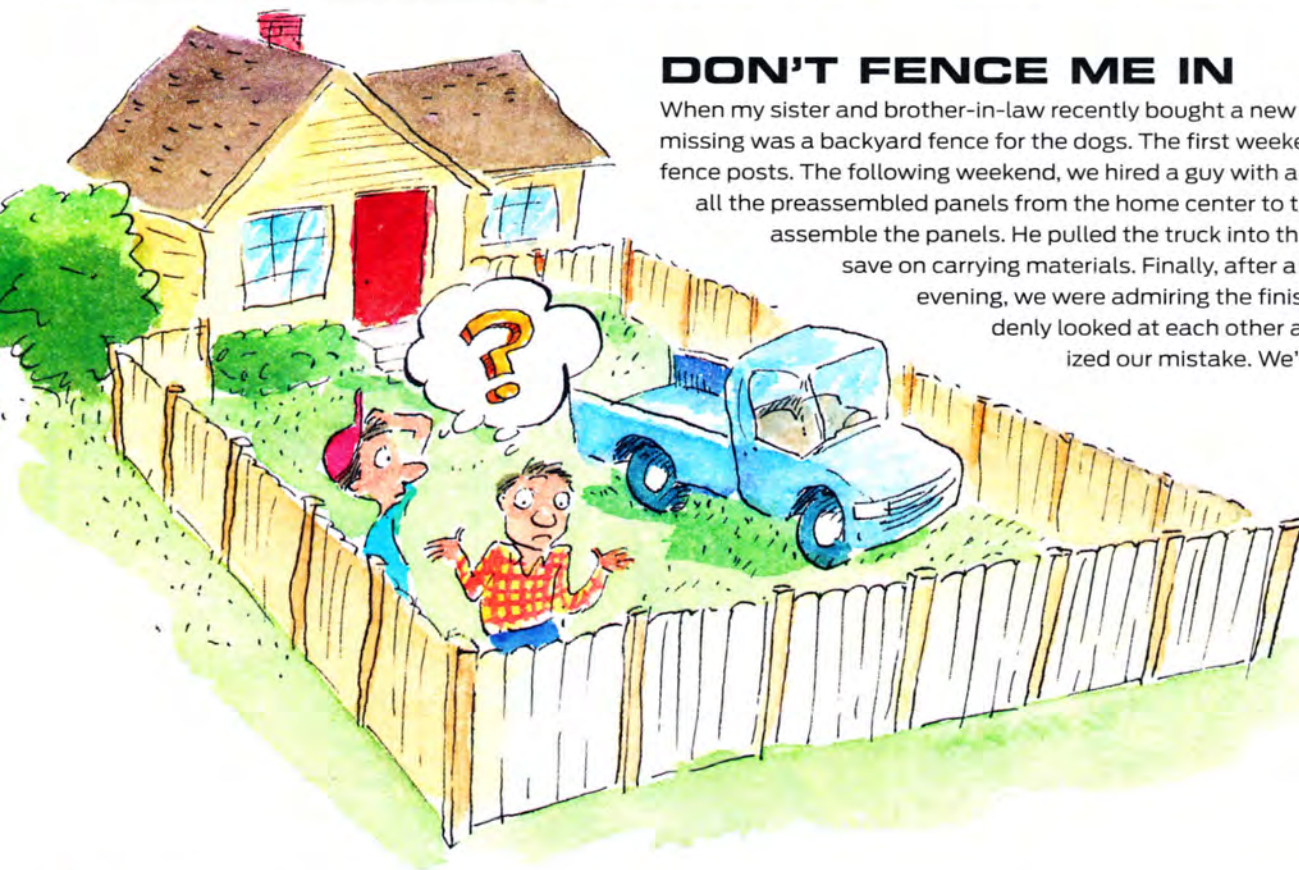
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* Editor's Note: Flammable solvents, paints and other liquids should never be stored inside your house—especially under the stairs!

Great GOOFS®

FROM OUR READERS

greatgoofs@thefamilyhandyman.com



DON'T FENCE ME IN

When my sister and brother-in-law recently bought a new house, the only thing missing was a backyard fence for the dogs. The first weekend we put in all the fence posts. The following weekend, we hired a guy with a pickup to help us haul all the preassembled panels from the home center to the backyard and assemble the panels. He pulled the truck into the center of the yard to save on carrying materials. Finally, after a long day turned to evening, we were admiring the finished job. Then we suddenly looked at each other and immediately realized our mistake. We'd fenced in the truck!

Ralph Tremato



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

A close call

In the double garage of our first home, we had a one-piece swing-up garage door, also known as a "kick-out" garage door. The door pivots up instead of rolling on tracks. I decided to replace the springs one day, and I opened the door and propped it with a 2x4 to secure it while I did the job. The old springs were stretched out and not too hard to remove. I soon discovered that I couldn't stretch the new springs enough with the door in the open position, so I reached for the 2x4 to let the door down.

Yiiiiiiiikes! The door was so heavy that it came down with a crash and sent me sliding on my keister halfway across the garage floor. Fortunately, I only had some bruises on my backside and scraped elbows. When my wits came back, I realized how lucky I was not to be in the back of an ambulance. I now leave garage door spring replacement to the pros!



John Gray



DONG-DING!

We had just moved into our second home and were in the process of painting the living room. There was an older-style doorbell on the wall that had two long brass chimes hanging from it that needed to be removed so we could paint. When we were all done, we put the room back together and rehanging the chimes. Several days later, someone rang the doorbell, and instead of the usual "ding-dong," it went "dong-ding."

I spent the next several days checking the wiring, plungers and even the transformer in the basement. It was driving me crazy! My brother, who works for our local electric company, stopped by one day. I explained the problem to him. He looked at me with amazement, went over to the chimes and switched them. I felt like a fool!



Bob Srygler

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