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Go to Page 1

Tips for Trouble-Free Printing

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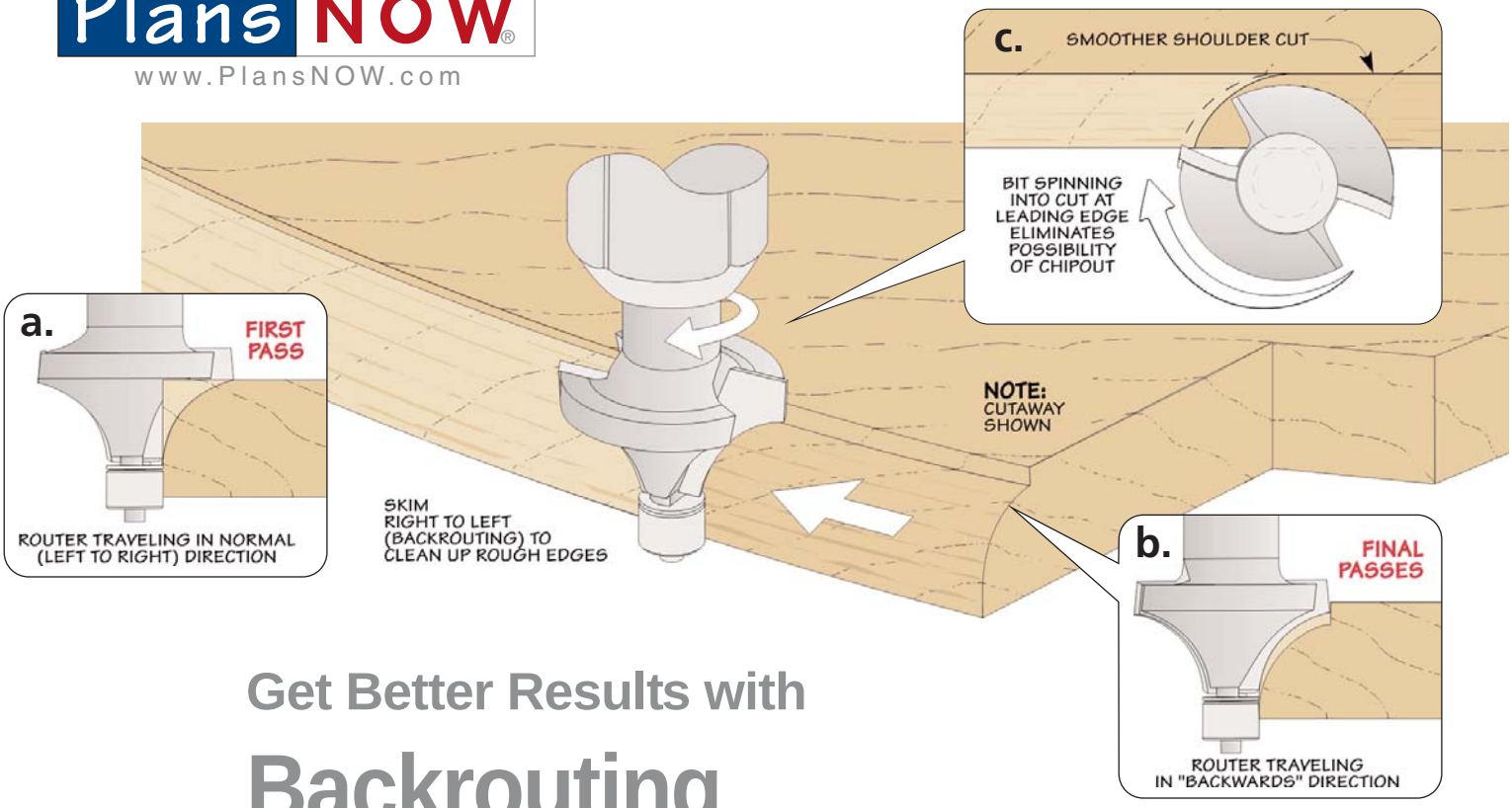


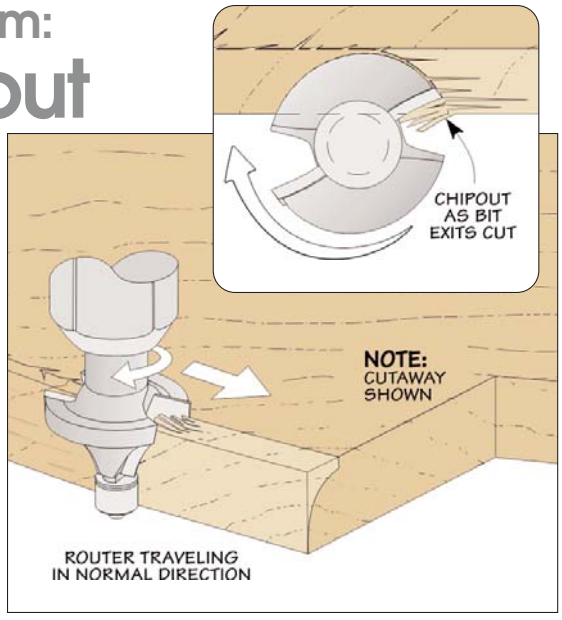
Get Better Results with

Backrouting

Most woodworkers have heard of backrouting. But usually, the message is to never do it. Backrouting is when you feed a hand-held router opposite to the usual cutting direction. Instead of having to push the router into the cut, it wants to pull itself along the edge of the workpiece like a dog tugging on its leash. The result is a very difficult time controlling the router. Instead of making a smooth cut, the router may simply skip along the edge of the workpiece. If you've experienced this, you know it can be a little unnerving. But I've found that there are a couple of instances when special backrouting techniques help me get a much smoother, cleaner cut. One uses backrouting to clean up the cut at the end, the other uses a backrouting pass to start the cut.

Left to Right Problem: Minor Tearout

The drawings at right show what can happen when routing in the normal left to right direction. As shown in the detail, the cutting edge of the bit is scooping away the waste from the inside out toward the edge of the workpiece. The problem is that nothing is backing up the wood as it's being cut. The result is that as the bit exits the cut, chips are simply split loose rather than being cleanly cut. Sometimes, but not always, this is a problem.



A CRISP, MOLDED EDGE

When I rout a profile on the edge of a round or oval tabletop, I want it be smooth and crisply cut. But this can be easier said than done.

The Problem. The problem is that as the router travels around the top, the grain direction is always changing. At a couple of spots you're trying to rout directly against the grain. If you're lucky, the result will just be a rough or "fuzzy" cut through this area. But often, you'll hear an ominous chipping sound over the whine of the router and be greeted by the sight of some nasty tearout (see the box at left). But fortunately, the solution can be pretty simple.

The Solution. Here is where backrouting can save the day and leave you with a crisp profile. The process I use is shown in the drawings at the top of the page. You'll begin routing the profile in the usual way by making a light cut in the

normal counterclockwise direction (detail 'a' at left). Now work down by adjusting the bit in small increments between passes. Shallow cuts should limit any tearout at this point.

When you get to where the bit will start cutting a shoulder and chipping may become a problem, hold up (detail 'b'). This is where you're going to start taking very shallow backrouting passes to complete the profile.

Start Backrouting. The reason that backrouting works is that when you're backrouting, the bit cuts into the wood differently. Detail 'c' at left shows that when you reverse the feed direction. The bit is now removing the waste from the outside-in. This means the wood being cut is always backed up by the wood behind it. The bit can shear off the wood fibers cleanly with no chance of chipout.

The key to this backrouting technique is that you want to take a *very light* bite — only about 1/32" at a time. So first lower the bit a hair and then take a firm grip on the router with both hands. Now, gently engage the edge with the bit and begin to move the router clockwise around the top. Since your cut is very shallow, you'll only feel a slight tug from the bit trying to pull the router along the edge. The weight of the router and the friction against the top will act as a good counterbalance. Once you get past the start of the cut and the slightly odd feel of moving the router "backwards," you probably won't notice much difference.

It may take three or four cuts to reach full depth, but don't be tempted to speed things up by taking deeper cuts. After several light passes, you'll be rewarded with a perfect profile.

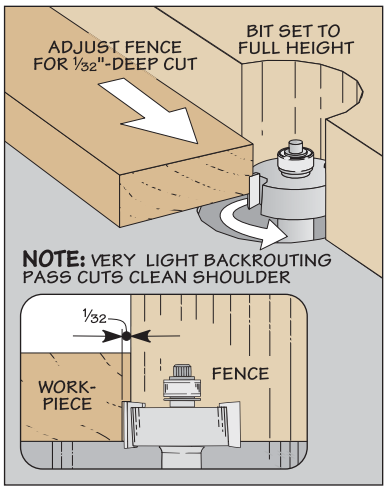
Backrouting for
A Clean Rabbet

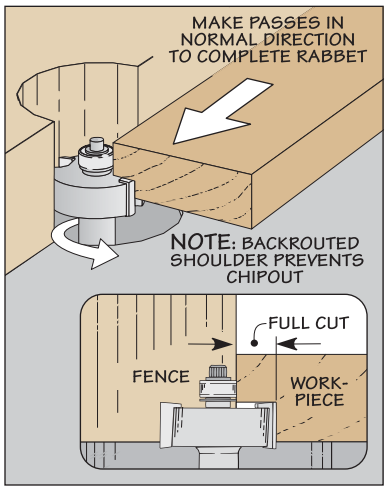
Sometimes you want the shoulder of a rabbet to be perfectly sharp and chip-free. You wouldn't want to spoil the look of a mirror or picture frame with a "rough" rabbet.

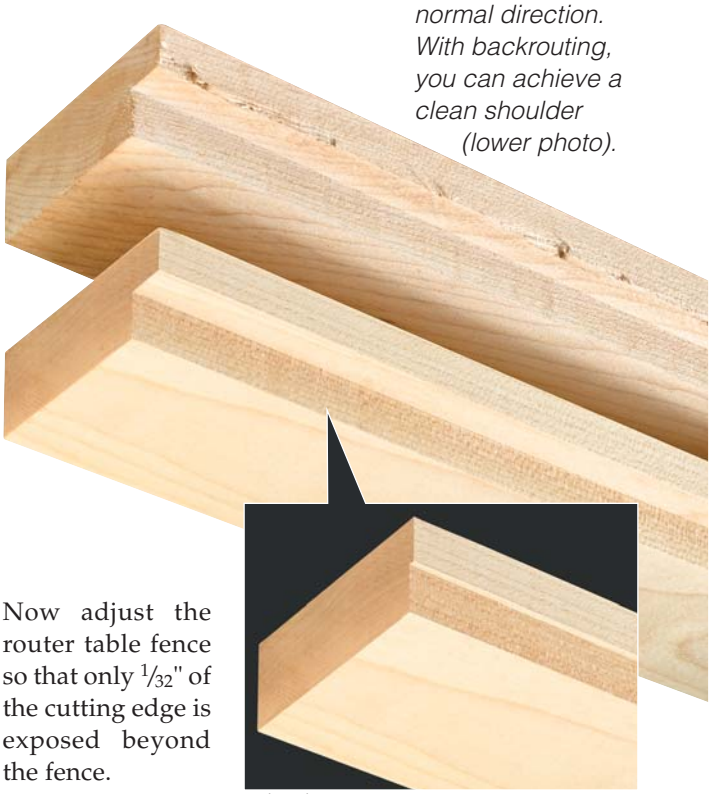
A Rough Shoulder. The router table and a rabbeting bit can be a quick way to rabbet a workpiece. But there can be a problem lurking. As you're making the cut, you begin to hear a sharp chipping noise. This is the sound of chipout along the shoulder of the rabbet as the bit exits the cut (upper photo). When you look at the workpiece, you don't see the crisp shoulder you expected. And I've found that even taking very light passes won't solve the problem.

A Perfect Shoulder. Backrouting provides an easy way to guarantee a clean shoulder. Let me emphasize, this is the *only* time I'll ever backrout on the router table. And I don't use this technique on workpieces smaller than 1½"-wide. All you have to do is follow the rules and it's safe and effective.

The drawings below show how the technique works. First, raise the bit to cut the full depth of the rabbet.







▼ ***A Rough Shoulder.*** *The upper workpiece shows what can occur when routing a rabbet in the normal direction. With backrouting, you can achieve a clean shoulder (lower photo).*

Now adjust the router table fence so that only 1/32" of the cutting edge is exposed beyond the fence.

Now you're going to backrout a light scoring pass to establish a clean shoulder (left drawing). Since your feed will be from left to right you'll want to stand to the left of the bit. Just keep both hands firmly on the workpiece as you slowly slide it into the bit. You'll feel just a slight tug on the workpiece as it makes contact. Maintain steady pressure on the workpiece to force it against the fence and flat to the table. When you check the shoulder, you'll find it's chip-free.

Once you've established the shoulder, complete the rabbet with normal right to left passes (right drawing). The light shoulder cut that you backrouted will prevent any chipout from occuring.

▲ ***Backrout the Shoulder.*** *A very light backrouting pass will establish a clean shoulder as shown above.*