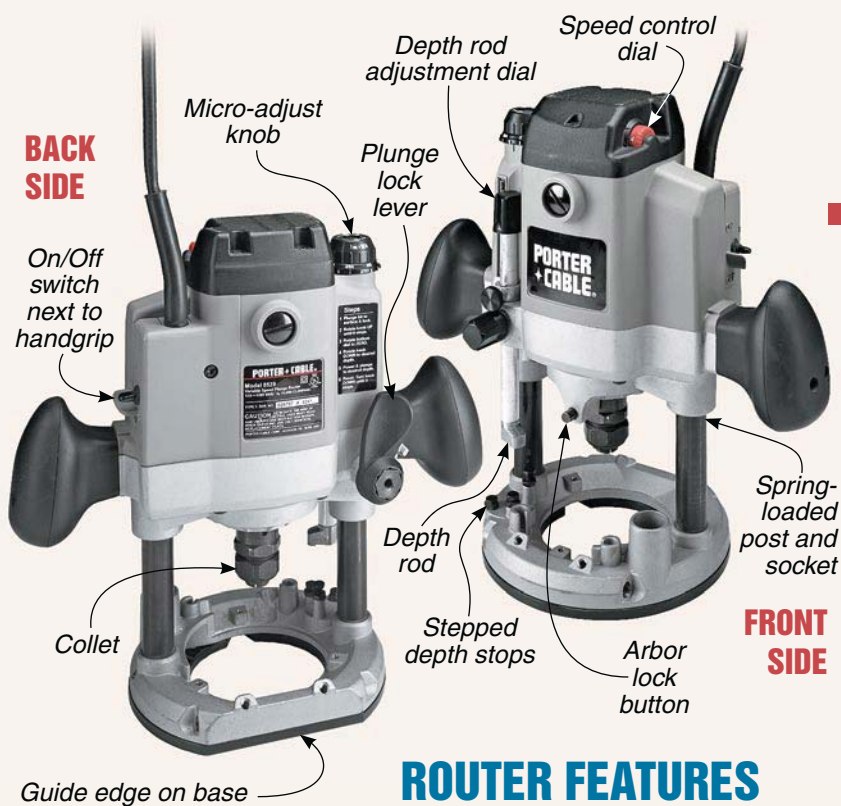


get the most from your
Plunge Router

Learn how to turn this handy tool into a shop workhorse.



ROUTER FEATURES

Plunge routers are nothing new. But if you've never owned or used one, a lot about them can seem quite a bit different from the fixed-base router you may be used to. So to get most benefit from a plunge router, you first need to understand the "mechanics" that make it work. Then the simple techniques for using a plunge router will come easy.

The Plunge. The trick that a plunge router can do is really pretty simple but extremely useful. With a plunge router you can turn on the motor and then lower the spinning bit straight down into the workpiece (or plunge) with complete control. This means that, unlike a fixed-base router, you're not limited to starting and stopping a cut at the edge of a workpiece. Stopped grooves, dados, mortises, pockets for inlay, and fluting are all fair game for a plunge router.

The Key Features. But before you can go to work with a plunge router, it's best to familiarize yourself with the unique features that set it apart. The photos at left and on the opposite page point these out.

Plunge Router Basics: The Key Features

Spring Action. On a plunge router, the motor and base are a single unit. A pair of posts attached to the base mate with spring-loaded sockets in the motor casing. They allow the motor to travel up and down on the base. You push against the force of the springs to lower the motor and bit, then at the end of the cut the springs take over to lift the motor and bit back up.

Plunge Lock. When you lower the bit into a cut, you don't want to have to concern yourself with keeping it at a constant depth. So a plunge router has a lock that fixes the motor at any position along the posts (photos, top row). The most common type is an easy-to-reach, spring-action lever that you trip with a finger or thumb. You pull it down to release the lock and simply let it spring back when you want to re-engage it.

Depth Rod and Stop. So you release the plunge lock and push the motor and bit into the cut. But what stops the bit at the correct depth? This job is handled by an adjustable depth rod and stop.

Together, the depth rod and stop form a simple system. As you see in the photos on the opposite page, the depth rod is housed in the motor casing. It can be easily adjusted up or down and then locked securely in place. The rod sits over a depth stop on the base. When the motor is plunged, the rod contacts the stop at the correct depth.

Most newer plunge routers have "stepped" depth stops, as shown at right. This arrangement allows you to make progressively deeper cuts without having to readjust the rod after each cut. You first adjust for a full-depth cut at the lowest step. Then you rotate the stop to a higher step and work your way down cut by cut. It's a really handy feature.

Micro-Adjust. A quick adjustment of the depth rod will get you close to your target. But for dead-on precision you'll find a micro-adjust feature built in to most routers. Fine-tuning the depth is literally as easy as turning a knob.

Changing Bits. Since you can't separate the motor from the base, access to the collet for bit changes is often tight. Most plunge routers get around this problem by including a spindle lock that makes "one-wrench" bit changes possible.

Turning It On. There's just one more item I want to mention. Controlling a plunge router during a cut is definitely a "two-handed" job. This means the critical controls

need to be right at hand and easy to operate — including the on/off switch. For this reason you'll find the switch on a plunge router very near or right on one of the hand-grips. The toggle switch on the router on the opposite page can easily be reached with a finger while still maintaining a firm grip. An even handier option is a trigger switch located on the handgrip (photo above). This is my favorite.



▲ **Grip Plunge Lock.** Turning the handgrip on this plunge router locks and unlocks the plunge action.



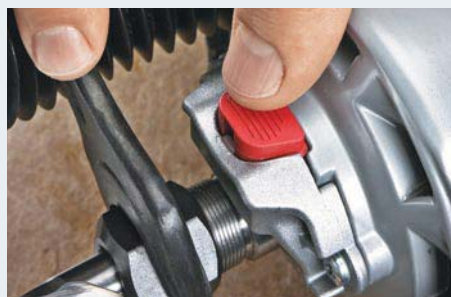
▲ **Lever Lock.** The most common type of plunge lock is a spring-action lever. You pull it back to release the lock.



▲ **Stepped Depth Stop.** The steps of this rotating "turret" stop let you quickly make a cut in several passes.



▲ **Micro-Adjust.** A micro-adjust dial provides an easy and accurate way to fine-tune the depth of cut.



▲ **Spindle Lock.** Depressing the button locks the spindle so the collet can be tightened or loosened with one wrench.



▲ **A Handy Switch.** You won't have any trouble finding the trigger switch on the handgrip of this plunge router.

plunge routing Basics

A plunge router can handle a lot of challenging tasks. Routing accurate stopped grooves and dados is a good example. And this job is a good way to get acquainted with the basics of using a plunge router.

First, Set the Depth. Once the bit is installed, the first step is to adjust the depth of cut. The procedure is going to vary on different brands of plunge routers, but in general it follows the same basic steps. The photos in the box below take you through the process. Remember to set the final depth using the lowest step on the depth stop.

Guiding the Cut. Before starting the cut, you need a way to guide the router. For basic operations like a stopped groove or dado, I like to use a straightedge clamped to the workpiece. With the flat side of the base against the guide, you have very steady control of the router (upper right photo).

Ready to Go. With the guide in place, set the router over the left end point of the cut. (You'll move the router left to right.) When you plunge into the workpiece, you don't want to guess where the bit



▲ **Position the Router.** Lower the bit to the surface to position the router for the plunge.

will enter. So with the router turned off, I release the plunge lock and drop the bit to the surface. Then I position the router over the layout, as shown in the inset photo above.

The Cut. With the router in position, raise the bit above the surface and you're ready to start the cut. First, you flip the switch, then you disengage the plunge lock and hold it. As you plunge, you want to be sure to hold the router very firmly with both hands — especially as the bit contacts the workpiece.

You want to push down until the depth rod hits the stop. Once

at full depth, I like to re-engage the plunge lever to keep the motor and bit from rising up on me. Now simply move the router slowly and steadily along the straightedge. Near the end of the cut, I slow down slightly so I can stop right on my layout line.

When you reach the end line, disengage the plunge lock and the springs will take over and raise the bit out of the cut. Once the router hits the top of the posts, turn it off.

Control. I've found that one of the keys to smooth, accurate plunge routing is maintaining firm control before, during, and after the cut. So the trick here is to get a good feel for the location and operation of the on/off switch and plunge lock. This will come easily with a little practice. 🛠️

Setting The Depth: One, Two, Three



▲ **Zero the Bit.** After installing the bit, set the router flat on your benchtop. Release the plunge lock, lower the bit to the surface, and re-engage the lock.



▲ **Zero Depth Rod and Dial.** Next, unlock the depth rod and lower it to contact the bottom step of the depth stop. Adjust the scale to read zero at this point.



▲ **Set Depth Rod.** Now, raise the depth rod until the scale on the dial matches the desired depth of cut. Finally, lock the depth rod in place.

Using a Simple: Mortising Jig

If all you ever did with your plunge router was rout mortises, I think you'd still consider it a great investment. It's fast, easy, and most importantly, you get cleanly cut and dead-on accurate mortises.

First, a Jig. To rout a mortise efficiently, you'll need an easy and accurate way to guide the plunge router. My answer is the jig you see at right. It consists of a pair of adjustable guides attached to a hardboard baseplate that replaces the router's baseplate (lower right photo). The guides snug up to either side of the workpiece to position and stabilize the cut. (To find complete plans for the jig, see the margin.)

The Setup. To get started, you'll need the jig in place and the bit installed in the router. (I prefer a spiral upcut bit for mortising.) With the mortise laid out, I clamp the workpiece down so that the jig will slide along it without obstruction (lower left photo).

Adjust the Jig. The next step is to use the layout lines on the workpiece to set up the jig. So set the router and jig on the workpiece with the bit roughly over the layout and slide the guides loosely up against it. To center the bit on the

layout, lower it to the surface and lock it in place. Now, you can "tweak" the position of the jig on the workpiece until the bit falls between the layout (right photo below). At this point, snug the guides up to the workpiece and tighten them down (left photo below). The jig should slide easily along the workpiece but without any slop or wobble.

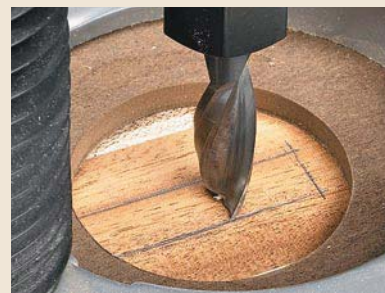
The Cut. Routing the mortise is really no different from the basic procedure described earlier. I always use multiple passes to "step" the mortise down at about $\frac{1}{4}$ " per cut. Plus, I like to start the cut by plunging just to the inside of the end line. Then I rout back to the layout line before routing forward. This is easier than trying to plunge several times at the exact same spot. To end the cut right on the mark, you can clamp a stop block to the workpiece, as shown in the upper right photo.

Since the workpiece is trapped firmly between the two guides, all you need to concentrate on are the "plunge mechanics." And when

▲ **Making the Cut.** Once the jig is adjusted, routing the mortises is a simple operation. A stop block takes any guesswork out of ending the cut.

▲ **A Simple Jig.** The two adjustable guides sandwich the workpiece, giving you very easy and steady control of the router during the cuts.

you lift the jig off the workpiece, I think you'll be surprised that a technique this easy can give such top-notch results.



▲ **Centering the Bit.** Lower the bit to the surface and then reposition the jig to center it on the layout.

◀ **Tighten the Guides.** With the jig positioned on the workpiece, snug up the guides and tighten the wing nuts.

ShopNotes
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EXTRAS

Go to our website
ShopNotes.com
to find complete
plans for the
plunge router
mortising jig.