

Shop-Made Set-Up Gauge

Turn a piece of plywood and a small metal rule into a precision set-up tool.

Are you tired of constantly having to bend over to check the height of a bit or blade with a metal rule, or having to squint to “eyeball” a measurement? Well just grab a scrap of plywood, and you can turn a standard 6” metal rule into the precision, easy-to-read set-up gauge you see in the photo at right.

The gauge won’t take long to make. (I made mine in about an hour.) But it’s sure to see frequent use around the shop. Positioning a router table fence (left photo below) or drill press fence (right photo below) is fast and easy. And setting the height of a router bit or dado blade (photo at left) is just as easy — and extremely accurate.

METAL RULE. As I mentioned, this is a scrap wood project. But you will want to have your metal rule in hand before you start. (I used a 6” rule.) That’s because the rule



rests in a shallow groove cut in the gauge. This groove keeps the rule straight up and down during use.

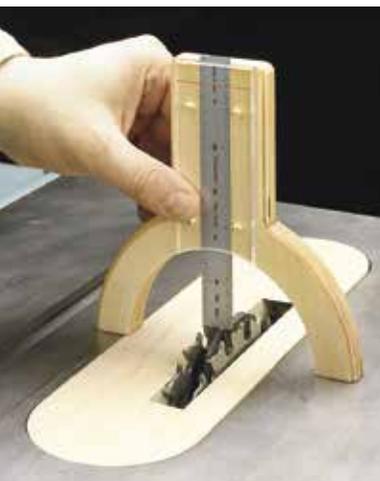
What’s important here is that the groove fits your metal rule. You’re looking for a smooth, sliding fit. The easiest way to do this is to start with a 6½”-square blank. (I used ¾” Baltic birch plywood.) This makes it easy to cut a centered groove for the rule, as in Figures 1 and 1a.

LAY OUT SHAPE. The next step is to lay out the shape of the gauge on the plywood blank. As you see in the photos and Figure 1, the shape

is a little unusual. The reason for this “bow-legged” stance is to span wide openings around a bit or blade. The narrower body at the top provides a comfortable grip.

CUT TO SHAPE. With the layout complete, a band saw makes quick work of removing the waste. Once this was completed, I routed a small roundover on a few of the outside edges and then sanded everything smooth, like you see in Figure 2.

MAGNET. Now what you need is a way to hold the rule in place. For this purpose I decided to use



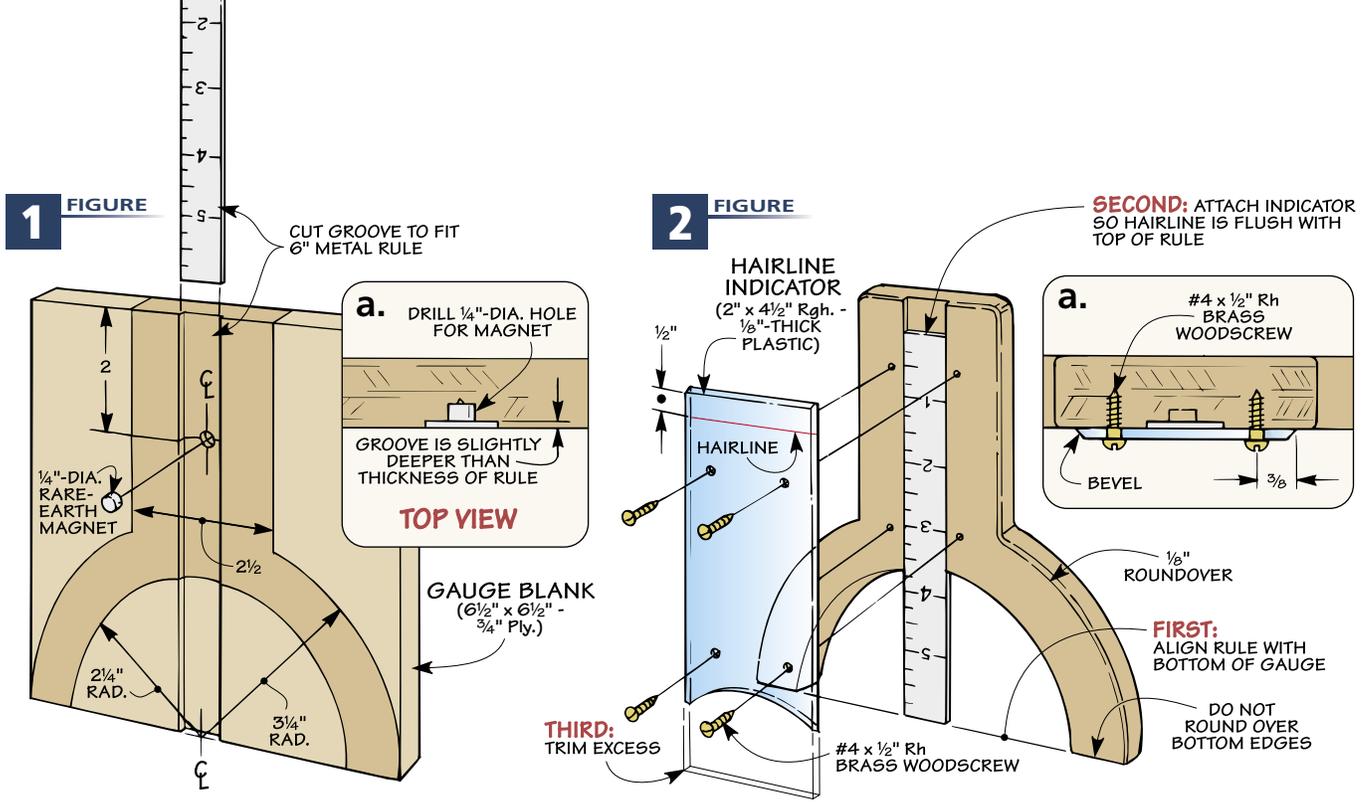
Blade Height. The gauge also makes quick work of setting the height of a dado (or saw) blade.



Router Table Fence. Setting the position of a router table fence can be a hassle. But with the set-up gauge lying on its side, it’s a simple, accurate task.



Drill Press Fence. In a similar manner, you can use the set-up gauge to position a drill press fence. This ensures that the drill bit is right where you want it.



a magnet. But not just any magnet. I chose a rare-earth magnet.

That's because rare-earth magnets are extremely strong for their size. As a matter of fact, I always keep a few different sizes on hand in the shop to use for various jigs and projects. (For sources of rare-earth magnets, refer to page 98.)

The magnet rests in a small counterbore drilled in the center of the groove, as illustrated in Figures 1 and 1a. You'll want to make the counterbore just deep enough so the magnet is flush with the bottom surface of the groove.

The magnet "locks" the rule in place when you're checking a setup, but it still allows it to slide up and down when you're making a measurement. An added benefit is that you can remove the gauge to check the reading without having to worry about the rule shifting.

HAIRLINE INDICATOR. The magnet holds the rule in place, but you still need a way to accurately make a measurement. That's where the hairline indicator comes in. It makes it easy to see the measurement on the rule, like you see in the inset photo on the opposite page.

As you can see in Figure 2, the indicator is nothing more than a line scratched into a piece of 1/8"-thick clear plastic. (I used Plexiglas.)

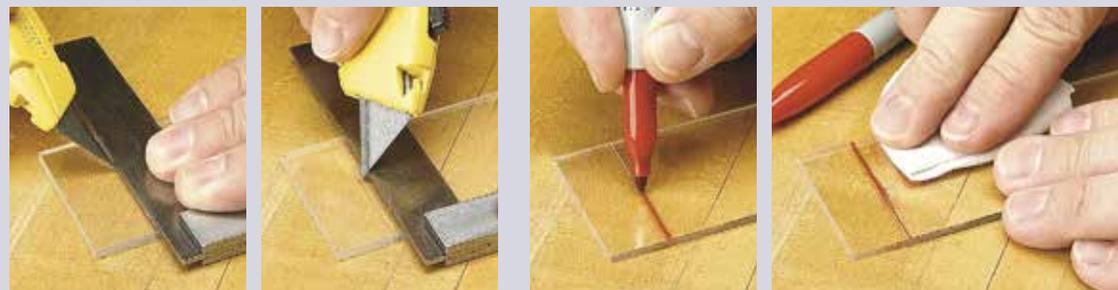
I started with an extra-long (4 1/2") piece of plastic cut to final width (2"). Then I formed a easy-to-see hairline 1/2" down from one end of the plastic using the procedure detailed in the box below.

INSTALL INDICATOR. At this point, you're ready to fasten the indicator to the set-up gauge with screws. To position the indicator, first rest the set-up gauge on a flat surface like the top of a table saw. Then slide the rule down the groove so it's resting against the surface.

After "zeroing out" the hairline with the top of the metal rule, clamp the indicator in place. Then drill a set of pilot holes and screw the indicator to the gauge, as shown in Figures 2 and 2a.

All that's left to do is trim the plastic flush with the inside edge of the gauge. I did this on the band saw. Then I eased the outside edges of the plastic by sanding a small bevel, as in Figure 2a. With the metal rule back in place, the set-up gauge is ready to go to work.

Making a Hairline Indicator



Making a hairline indicator for any project is just a simple two-step process.

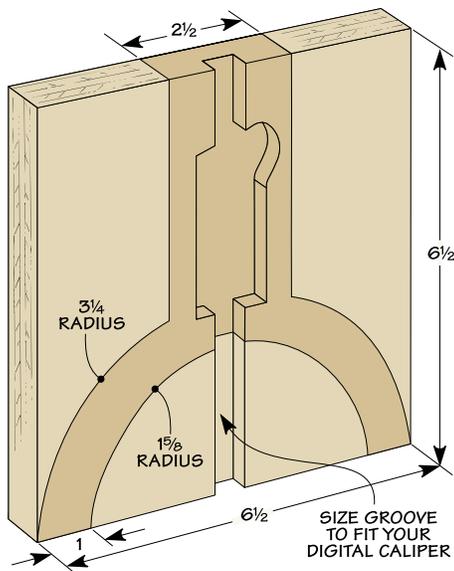
Score Mark. The first step is to cut a couple of angled score lines on the back side of the plastic, as in the first two photos above. These cuts form a very shallow V-shaped channel.

Permanent Marker. To make the hairline visible, the second step is to fill the channel with a permanent marker, as shown above. When you wipe across the channel to remove the excess ink, you'll leave a small hairline visible across the indicator (right photo).

Make It Digital

I got tired of “eyeballing” it whenever I needed to check the height of a saw blade or fence setting. So I modified the set-up gauge slightly to accept an inexpensive digital caliper.

The set-up gauge is easy to build. You’ll want to start with a 6½”-square piece of ¾” plywood.



Next, lay out the legs and the body of the gauge on the workpiece (see drawing at left). Then mark the centerline on the square.

Now, you’ll need to make a place for the calipers to rest in the body of the set-up gauge. To do this, lay your caliper on the centerline and use a pencil to draw the outline of the caliper measuring arm and digital readout.

To cut out the area the caliper sits in, I used my table saw and a dado blade to cut a ¾" groove down the centerline of the workpiece. Then a router and a ¼"-dia. straight bit easily removed the remaining waste around the digital readout.

Finally, use your band saw to cut out the legs and body of the gauge. You can round off the edges with sand paper or your router.

All that’s left to do now is cut off the head of the caliper so only the arm



remains. Then use instant glue to secure the caliper into the cutout.

Using the set-up gauge is quick and easy. Simply place the gauge in position and zero out the digital reading. Then move the arm to position and look at the digital readout to find the measurement.



Be More Direct

The setup gauge is a great idea, but consider this improvement when making yours. Make the height of the gauge exactly 6". This way, it’s easy to read the measurement on the 6" rule directly off of the top of the gauge (inset photo). The added benefit is that you can read the scale from the back of the gauge, as well.