

Door Hanging Jigs

Site-made jigs can streamline door hanging with speed and accuracy

Faced with an expensive, custom-made door blank, most carpenters feel at least a twinge of anxiety as they cut the door to length, start to bore into the face for a lockset, or plunge a router into the edge for a hinge mortise. The three jigs in this article can simplify layout and ensure the accuracy of hinge mortises, lockset holes, and undercuts.

A Doormaker's Mortising Jig by Grant Taylor

I run a small custom millshop in South Acworth, N.H., that specializes in custom doors. We provide pre-hung packages, so I end up mortising a lot of doors and jambs. I do each mortise with a jig made of scrap plywood. The beauty of a mortising jig is that it will quickly and precisely lay out the hinges on both the door and the jamb, and also serves as a template for mortising the hinges.

From time to time I think about buying a manufactured steel mortising jig. But it takes me less than half an hour to make my jig. I would spend more time than that just reading the instructions for a commercially-made jig.

Hinge layout. Any solid-core door should have at least three



Doormaker Grant Taylor mortises a jamb with a jig made from scrap plywood.

hinges. Three-foot-wide exterior doors and tall doors (between 7 and 9 feet) should have at least four hinges. Bigger doors may need more.

The way I was taught to lay out the hinges on a standard 6'-8" door

is to place the first hinge 9 inches down from the top, the second hinge 11 inches up from the bottom, and the third hinge centered between the first two.

The leaf of a door hinge should stick out from the edge of the door

slightly, leaving about a 1/4 inch of wood along the other edge of the hinge to help support the weight of the door. For example, the mortise for a standard 1 3/4-inch-thick exterior door, would be 1 1/2 inches wide, leaving 1/4 inch of wood along

the outside edge.

Making the jig. I start out with a very straight strip of 1/2-inch plywood about 5 inches wide. I cut this to rough length to match the door height, and mark the hinge layout on it. I then notch this piece to form a template for routing the hinges (see Figure 1).

The jig works with a template guide that screws on the base of the router. I use a Black & Decker router and guide (part #C62950), but guides are available for just about any brand. To allow for the guide, the notches in the jig must be oversized on all sides for the 1/16-inch thickness of the guide. For example, if I'm using 4-inch hinges on an 1 3/4-inch-thick door, I make the hinge notches 4 1/8 inches long, and 1 9/16 inches wide.

After completing the hinge cutouts, I tack a second strip of 1/2-inch plywood to the first, ripped slightly narrower than the thickness of a door so the jig will fit over the door stop when it is used on a jamb. The ends of the top strip should be notched back at each end so it won't hit the stop on the head jamb.

To cut through the second strip at the hinge notches, I use the router and guide. These second notches are then exactly the size of the mortises. I check the size of each notch to make sure it fits the hinge perfectly. I want the hinges to look like they're growing out of the edge of the door after I cut a mortise. If the notch is slightly big, I glue pieces of a business card to the edges of the notch that the guide rides on.

After I cut and fine tune the notches, I chop the bottom end off the jig so the notches are evenly spaced from both ends. This allows me to flip the jig end for end to mortise either left-hand or right-hand doors. I always work from the top down, keeping the jig flush with the top of the door.

Finally I add four pieces to the side of the jig to act as a fence that registers on the face of the door. If I've started out with a straight piece of plywood, I know the jig is straight. If the door is bowed a little bit, I know at least the hinges will be mortised in a straight line and will be less likely to bind.

Most of the commercially made jigs have pins that you nail into the edge of the door and onto the jamb. I never liked the idea of adding holes I'll have to fill. Instead, I clamp my jig in place with pipe clamps running from edge to edge across the width of the door. On the jamb, I reverse the clamps on the pipe and brace against the latch side of the opening. I use a nickel as a spacer at the top of the jig on the jamb, to allow for the gap between the head jamb and the top of the door.

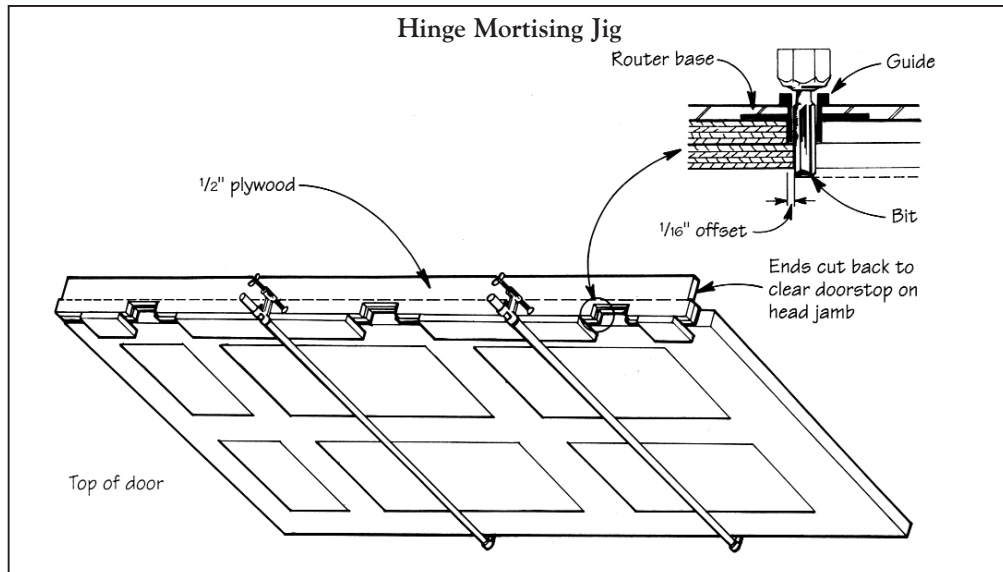


Figure 1. This shop-made hinge mortising jig clamps to the door edge and jamb with pipe clamps. It quickly and precisely lays out the hinges on both the door and jamb, and serves as a template for mortising the hinges.

A Remodeler's Lockset Jig by Walter Koehling

In my remodeling business in Portland, Ore., I hang a fair number of door blanks and install a lot of passage sets and deadbolts. I would love to own a commercially-made lock mortising machine for this work, but so far I'm not convinced that the tool is worth \$600. Instead, I make a simple jig that quickly measures the backset, locates the latch, and accurately guides my drill bits.

Figure 2 shows how the jig is made. The side pieces are cut at exactly 4 inches wide and the guide hole is centered on this piece. This way I can place the bottom of the jig 34 inches off the floor so the knob is centered at 36 inches. For a deadbolt, I place the jig at 40 inches, so the thumb latch is centered at 42 inches.

The jig is adjustable to accommodate either 1 3/8-inch-thick interior doors or 1 3/4-inch-thick exterior doors. Two pieces of lauan plywood space the door just about perfectly. If the jig is tight, I can always loosen the carriage bolts.

I have an extra side piece to guide a hole for 1 3/4-inch deadbolts and one for hardware with a 2 3/8-inch backset. I try to always use hardware with a 2 3/4-inch backset, however, because the 2 3/8-inch backset can be a real knuckle-buster if the client chooses a large knob. So there's no mixup, I label each extra side piece with a bold magic marker, indicating the type of hardware and the backset.

To drill through wood doors, I use a 2 1/8-inch Milwaukee "Selffeed" bit instead of a hole saw.

These cost about \$35 each, but they seem to stay sharp longer than hole saws, and because they hog out the entire hole rather than cutting a plug, they don't bind as easily. For steel doors, however, I use Lenox bimetal hole saws.

With either bit, I drill from only one side straight through the door rail. Clamped in place with screw clamps, the solid backer on the jig will keep the bit from tearing out on the opposite side of the rail. A piece of tape on the bit gives me a

rough idea of the depth of my hole so I don't drill all the way through my jig.

To drill the latch hole in wood doors, I use a 6-inch-long, 1 5/16-inch ship auger bit. This too is expensive (about \$25) but it cuts a lot faster than a spade bit. The 3-inch block on the door edge guides the ship auger bit in a straight line, too. With a spade bit there's always a chance you can drill out of square, and the latch will stick open.

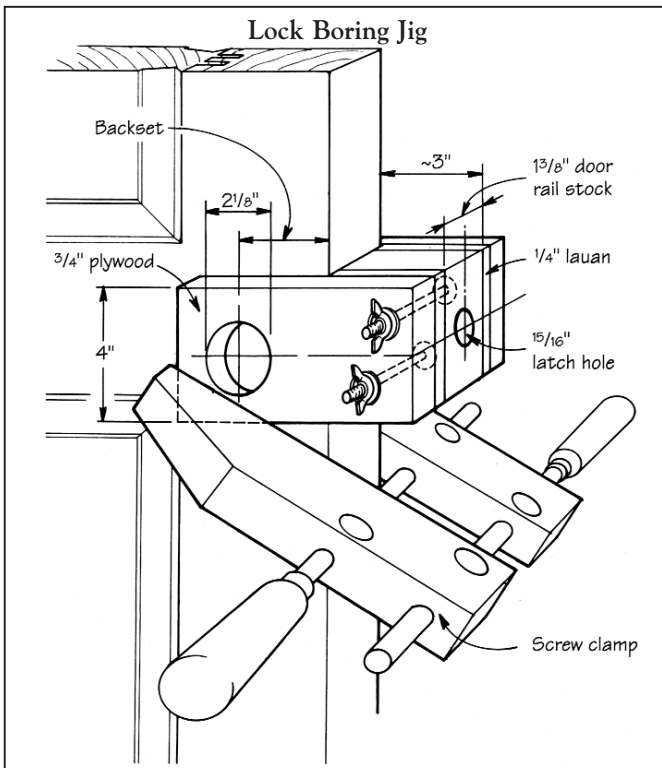


Figure 2. This lock mortising jig, which adjusts to fit interior or exterior door thicknesses, clamps to the latch side of a door with a screw clamp. With the two lauan spacers, the latch hole will be centered in the edge of a 1 3/4-inch door.

A Shoot Board

by Clayton DeKorne

I used to take a long time to undercut doors, until someone turned me on to a “shoot board.” This simple jig serves as a straightedge to guide the saw, and holds down the grain at the cut so the blade doesn’t tear out on cross grain or on veneer. Before I made the shoot board, I used to laboriously scribe each cut with a utility knife and then measure back from this line the width of my saw shoe and clamp a straightedge to the door.

I made my first shoot board with two strips of $\frac{3}{4}$ -inch plywood — one for the fence, and one for the table (see Figure 3). Later, I made a fancier version with an aluminum extrusion and

I recently ran across a commercially-made shoot board that has an adjustable fence on it. This allows you to adjust the fence each time you change the blade on your saw, so the edge of the shoot board stays clean and the grain on the door is always fully supported right at the cut line. It’s called the Plymate and is available for around \$30 from Olive Knot Products (P.O. Box 188, Korning, CA 96021; 800/759-6283, or 916/824-5280 in Calif.).

I hardly ever worry about undercutting interior doors too much. The bottom of the door should be at least $\frac{1}{2}$ -inch above the finish floor. For carpet and tile, undercut the door at least 1 inch above the subfloor. For $\frac{3}{4}$ -inch hardwood, undercut at least $1\frac{1}{4}$ -inches from the subfloor. In kitchens and bathrooms with power ventilation, consider

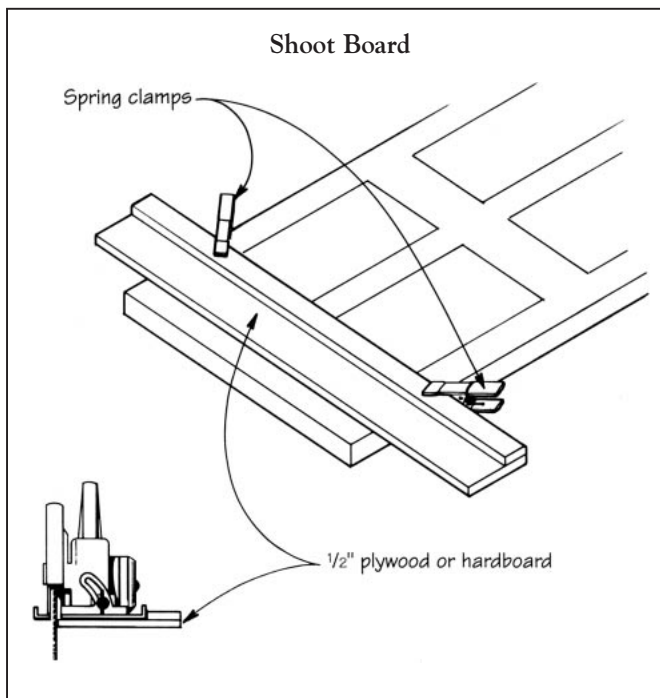


Figure 3. A “shoot board” clamps to a door with spring clamps. It serves as a straightedge for undercutting a door, and supports the cut edge, eliminating tearout in the cross grain of door rails or on veneer faces.

a piece of hardwood plywood, but it worked just the same. The table is the width of the shoe on my saw, which rides on the table. I clamp the outside edge of the board’s table to the cut line on the door with a pair of spring clamps. With veneers that splinter easily, I usually score the cut along the edge of the board before cutting. I have to replace the table on the jig occasionally because the edge near the blade gets chewed up by different thickness blades.

undercutting the door a full inch above the *finish* floor.

If the floor is out of level in an old house, you may have to cut more than the $\frac{1}{2}$ -inch minimum off the door so it will open all the way. If this is the case, make sure you scribe to the slope of the floor with the door closed. Otherwise the undercut will not be parallel to the floor when the door is closed. This is much more noticeable than having the undercut out of parallel when the door is open. ■