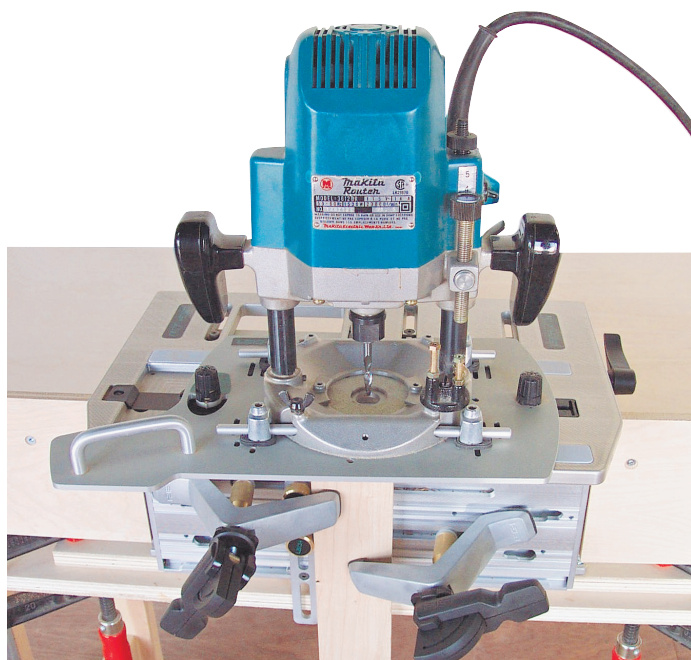


Leigh Mortise and Tenon Jig



The mortise and tenon is arguably one of the most widely used joints in the woodworker's repertoire.

This versatile, traditional joint has always been associated with high quality cabinets and furniture, and continues to be popular because of its inherent strength.

When you only need to make a few mortise and tenon joints, cutting them by hand is the way to go. It's not all that difficult, although getting a good fit does take patience and practice. The most critical factor in ensuring a strong joint is a snug fit between parts.

The sides of the tenon and mortise must be parallel and smooth. Most woodworkers seem to use some combination of chisels, handsaws, drill press, bench top mortiser, and shop made router jig to cut the joints. For a large project where you might be cutting several dozen joints, it becomes more efficient and expedient to cut the joints by machine.

Recently, Leigh Industries (Port Coquitlam, BC) introduced the **Leigh Frame Mortise and Tenon Jig (FMT)**. In most woodworking circles the name "Leigh" is synonymous with "dovetail jig". The Leigh D4 Dovetail Jig has long been considered the best of its kind on the market. The prospect of testing the FMT then, was one I eagerly anticipated.

Now, after four weeks of using it in my shop I'm convinced that Leigh has hit the mark again: the FMT is without a doubt the best mortise and tenon jig for the money.

Read All About It!

The FMT is surprisingly easy to use once you know it's operating concept. Start by

reading the user guide, which is superbly written and illustrated. Chapters 1-3 show you how to mount the jig on a plywood base so you can clamp it to your workbench; how to mount your plunge router on the sub-base; and, how the template and guide pin system work. The rest of the guide illustrates how to cut 13 different kinds of mortise and tenon joints. Mounting your router on the sub-base takes about half an hour, but once done you can remove it in a few seconds for use elsewhere.

Built to Last

The FMT is CNC machined from a range of tempered and die-cast aluminum parts. Everything looks and feels first class. The parts that move do so smoothly, while the clamping mechanisms hold stock securely

without requiring you to exert a lot of torque. The templates are made of "delrin", a Dupont plastic polymer product that has been called "synthetic stone" because of its durability. My overall impression is that this unit will put up with years of shop use. This durability is supported by a generous five-year warranty.

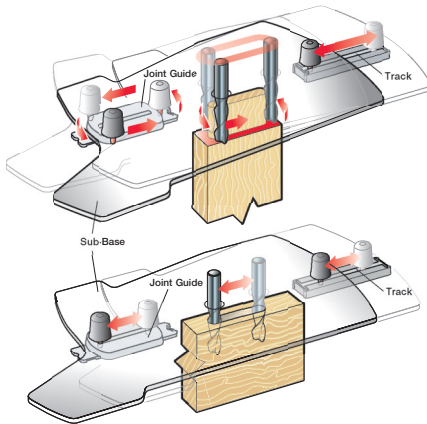
The Heart of the Matter

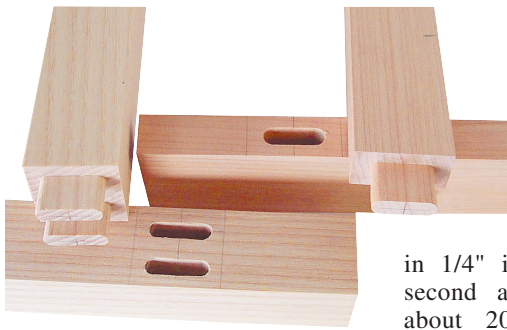
What makes the FMT a real boon for us woodworkers is that it's template guided, with the same guide and router bit cutting both mortise and tenon (see illustration). You rout around the guide to cut the tenon, and inside the guide to cut the mortise. You cut all your tenons sequentially, then all your mortises. This affords you incredible accuracy, maximum ease of use, and unmatched speed.

If you do even a small run of mortise and tenon joints, (i.e. four or five cabinet doors) you'll experience a significant savings in both time and cost. Imagine your savings over a year's worth of work!

Critical Adjustment

There are two critical adjustments you need to make before using the jig, and both are explained fully in the guide. The first is to adjust the "play" of the pin on the right underside of the sub-base. It only takes five minutes, and you only have to do this once. The second adjustment needs to be done once for each set of joint guides you have. Note: The FMT comes with one



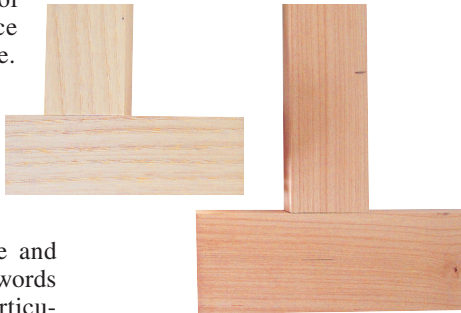


5/16" spiral upcut bit (with a 1/2" shank) and five 5/16" joint guides, which enable you to cut joints from 1/2" to 1 1/2"

in 1/4" increments. This second adjustment takes about 20 minutes, and involves cutting a set of test joints.

Cutting Joints

In order to cut perfect joints it's imperative that your stock is true and square, and it's surfaces are smooth and free from milling marks. Form the habit of having the same side of the work pieces face against the clamp plate. It is also important to take care when marking the centres of your tenons and mortises; I found that a marking knife did a better job than a pencil. Patience and consistency are the keywords when cutting joints, particularly for a production run.

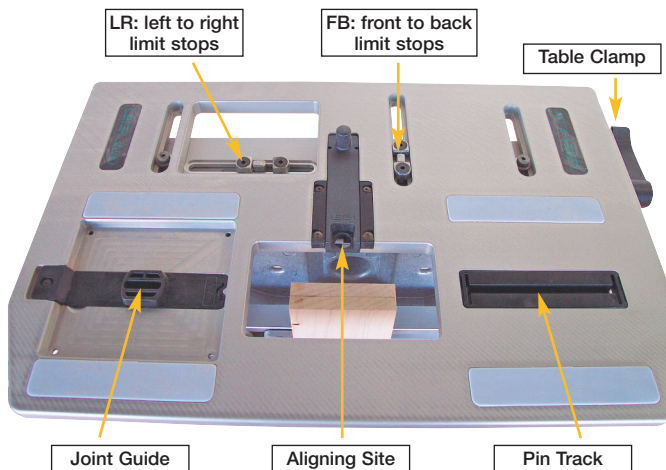


The actual process is pretty intuitive, and after a few test cuts, is fairly easy to remember.

As the term implies, the "limit stops" (LR and FB) limit movement of the tabletop. You'll adjust these before you rout your tenons. You'll also use them before you rout the mortises, if your mortise work pieces are of different dimension than your tenon work pieces.

The "aligning sight", which you use in conjunction with the limit stops, enables you to accurately position your work piece. Once set, you'll use the "table clamp" to lock the tabletop in place. The "joint guide" and "pin track" guide the router as it cuts the stock. Simple to remember, easy to use!

Because the sub-base cutter hole is only about 1" diameter, it's somewhat difficult to see the bit as it cuts stock, which for some folks might take a bit of getting used to. The dust port on the back of the jig does a pretty good job of picking up most of the debris, except when large stock blocks up the cutter opening.



The clamp plate tilts up to 30° from vertical, and the side stop fence can be angled up to 45° left or right, enabling you to cut angled and compound joints. I did cut a number of offset, wide, twin, quadruple, and bridle joints without a hitch.

Accessories

As mentioned, the jig comes with matching 5/16" bit and guides. You can buy guides for 1/4", 3/8" and 1/2" tenon sizes. Matching bits can be bought from Leigh or any third-party source. By mixing different bit sizes and guides you can cut a total of 68 different joint sizes from an incredibly small 1/32" by 3/32" to as large as 1/2" by 4 1/2". For a single tenon the maximum work piece size is 1 5/16" by 5 1/2", while for a quadruple tenon it's 2 3/4" by 5 1/2".

Impressions

The FMT is one of the best shop accessories that I've seen in years. It enables anyone, from novice woodworker to seasoned shop pro, to cut faultless mortise and tenons. In a production environment it will pay for itself in increased productivity in a very short time. And best of all, the jig is easy to use. The photo examples show the first single and twin joints that I cut with the FMT. Marking and cutting a set of 16 single joints (5/16" by 3 3/4") took 50 minutes. Each one was a perfect fit!

Where to Get It

The FMT is available from Lee Valley Tools (www.leevalley.com or 1-800-668-1807) for \$1,059. A set of 1/4", 3/8" and 1/2" joint guides cost \$99. The basic kit includes the jig, five 5/16" joint guides, a 5/16" spiral upcut bit (with a 1/2" shank) and a comprehensive instruction guide. For more information contact Leigh at 1-800-663-8932 or www.leighjigs.com.

CARL DUGUAY is a writer and woodworker from Sidney, British Columbia 250-888-5067
carl@finewoodworking.ca www.finewoodworking.ca

8 PROJECTS
PLANS TIPS JIGS TOOLS

Canadian Woodworking

AUGUST/SEPTEMBER 2009 Vol. 6, No. 4



Restoring Hand Planes



Building Base Cabinets
For Kitchen & Bath

Wood Finishing
Surface Preparation

Blanket Box
Attractive Storage Space

Sleigh Bed
Unique Bedroom Furniture

PLUS: Tool Reviews,
Dust Collection,
Coming Events

CanadianWoodworking.com

\$4.95

