

Leigh Frame Mortice &

£650.00 ☎ 0845 330 9100

www.leighjigs.com

Routing mortice and tenons is relatively easy, but the downside has to be making the jigs. If you only use one size joint, then it's not too bad, but many projects require a range of joint sizes and thus several jigs. Following hot on the heels of Trend's new MT Tenon Jig (GW 124:22), Leigh's Canadian-built Frame Mortice and Tenon Jig puts an end to jig making. It has a clever slot-in guide system which acts as a template for both tenon and mortice.

At first it looks daunting, but the 126-page manual is easy to follow, with excellent text and diagrams. It shows not only initial set-up and basic jointing procedures, but also more elaborate uses for double and quadruple tenons, bridle jointing, splayed tenons and dowelling.

Unlike the Trend, the Leigh jig is made from heavy aluminium extrusions. A separate router plate locates on top of the base unit. The heart of the system is the link between the top of the jig and this plate.

To set up, the router has to be correctly positioned into the plate, for which centring pins are supplied for $\frac{1}{8}$ in, $\frac{1}{4}$ in, 8mm and 12mm collets. These locate through the cutter aperture to keep the plate perfectly central. Four clamping posts attach the



router to the plate, enabling the fence rod holes to be used as locators. Packers allow for differing base thicknesses. Certain routers can be fitted directly to the plate, and a chart in the manual indicates which holes or slots are used for which model. Most machines are listed, but the plate has a variety of layout holes to accommodate the majority of routers. Even so, the packer blocks are still fitted tight to the base, so the router can be dismantled easily and repositioned quickly.

Underneath the router plate are two pins. One locates into a fixed slot in the main jig's top face, the other into a removable

guide which determines the profile of a specific joint for both length and width. Five profile guides are supplied, which determine the tenon/mortice size (up to a maximum $\frac{1}{2}$ x5in joint). These correspond with the $\frac{1}{8}$ in spiral upcut bit to give the correct fit. By varying bit sizes, different tenon and mortice thicknesses can be easily achieved, working on the standard guide-bush-to-bit ratio. As an indication of its capabilities, this jig can even produce a joint in a pair of matchsticks... Hard to believe, but I've seen it done!

Two cam-locking clamps on the vertical front face of the jig hold the workpiece in position. A

further adjustable side fence act as a stop as well. Both face plate and fence can be used either vertically for square-shouldered tenons, or at an angle for ordinary angled tenons or compound ones. A pair of locking knobs and a graduated scale aid accurate positioning.

Cross-hair Position

Setting the position of the joint is simple. Traditional marking methods are dispensed with as the centres of both tenon and mortice are the critical positions, and not the cheek lines. Once these have been established a sliding cross-hair marker in the top plate is pulled across and lined up with the marks. The plate is then locked laterally and longitudinally by either a cam lock, or two pairs of adjustable stops in channels in the top plate, or by a combination of the two.

The really clever part comes later, once you've mastered basic joints and want to progress on to cutting double, quadruple or other configurations of tenons. By positioning the cross-hair over each centre, the relevant lateral or longitudinal stops can be positioned against their fixed pin, thus confining the jig to these chosen centres. The cam-lock lever on the plate is then used to lock the jig for the first joint, then

To set the joint position, you work off a centre line. A plastic guide slides across to line up (right)



Four sliding stops can be locked with a hex driver to govern overall position of the joint

There are five individual plastic guides supplied, each one used for a foolproof matching mortice and tenon. Used with the $\frac{1}{8}$ in spiral upcutter included, joints are exceptionally clean



The plastic guide is inserted into the aluminium top plate. This determines the length of the joint. The upper router plate has two pins that work in conjunction with the plastic guide and fixed slot

Tenon Jig

released to move the jig to the next pin and locked again for the second cut.

Matching multiple mortises are made the same way, without moving the stops. By lining up one joint with the cross-hair, the rest are automatically perfectly placed in each position and routed accordingly.

Routing the Joint

Once you've overcome the initial trepidation that any new complex device can create, the Leigh jig is really simple to use. To make a single mortice and tenon joint you first rout the mortice with the guide pins on the router base-plate running inside the fixed slot and the specific guide template slot for this operation. You plunge-cut a series of holes, using the depth stop on the router to limit this, then run the cutter backwards and forwards to clean out the slot.

For the tenon component, the stock is held vertically in the jig. The template guide pin is now positioned to run around the outside of the guide rather than in its central slot. You then set plunge depth to a pre-determined shoulder length and run the cut, making a first light cut the 'wrong' way to give a clean shoulder, before finishing the cut normally. The handle on the plate helps

control. The result is a tenon with rounded ends that should fit perfectly into its mortice.

The joint is indeed snug. My first attempt in softwood made a satisfying 'pop', it fitted so well. On some timbers this fit might be too snug though, as the glue will slightly swell the joint, stopping it from fitting together. However, an ingenious device has been built in to overcome this. The guide pins, and the slots they run in, are

tapered. Above each pin is a dial, and by rotating this to one of seven positions, the pin can be raised or lowered. This allows very slight play between the pin and its slot, creating some play in the joint. One eighth of a turn will alter the play by 0.025mm, so accuracy is still spot-on.

After making a basic joint, and feeling more confident as a result, I tried a couple of double tenons in hardwood, one straight

shouldered and one on a double splay. Once the positional stops were set, the method was exactly the same, although you need to take care not to encroach into the first tenon position as the second cut is made. Again, I achieved absolutely perfect results.

This sophisticated jig is far from cheap, which will certainly limit the number of potential customers. However, if you can afford or justify the cost, its complex capabilities and astounding accuracy make this new Leigh jig a fantastic tool. Admittedly, it's unlikely many joiners would get much out of it, but bespoke furniture or cabinetmakers could well find it an invaluable piece of kit.

When we tested it a few months ago, Trend's new Mortice and Tenon Jig impressed us no end. The Leigh jig is far more expensive, but it's in a different league altogether.

GW verdict

- Perfect joints every time, Build
- Initial cost very high

Value for money ●●●●○
Performance ●●●●●



A series of posts make router removal quick and easy for other work without the jig. A fitted D handle makes cutting easier to control. There are twin cam locks on the front timber clamps. Fitted with the new Bosch router



Both tapered guide pins are adjustable to allow for a tighter or looser joint

The vertical front plate can be tilted up to 30° for compound joints. It's locked off rigidly at each end (left)



Once set up, these fairly complex joints took less than five minutes to make. The fit was flawless

