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BY RON FOX

Beyond the basics

A router is only as good – or as versatile – as the cutters you fit into its collet. Knowing which one to use for a particular job is tricky for the novice router user, but help is at hand. In this new series, router guru Ron Fox takes the mystery out of the cutter conundrum



1

Template profilers and flush trimmers compared; note the difference in the location of the bearing

Most newcomers to routing start with a boxed set of basic cutters, or perhaps with a few free ones included with the router. As their routing activities develop, they add individual cutters as the need arises. That's how it should be.

There's a bit of Catch 22 about this, though. Unless you know what cutters are available and what they can do, you can't decide which is the best one for a particular task. In this series of articles, therefore, I plan to describe some of the most useful but lesser known cutters, and suggest how to get the best out of them.

Many of the most useful cutters are highly specialised, quite expensive and often meant for use only in a router table, but I shall start by describing two of my favourite simple cutters and how I use them.



2

Truing a board edge, with the cutter spanning the thickness of the board



1: TEMPLATE PROFILERS

These cutters, **photo 1**, also known as profile guides and template trimmers, are among the most heavily used types in my workshop. They trim the workpiece flush with the edge of a template or straightedge, but unlike the familiar flush trimmer (which is found in most boxed sets) the template profiler has its bearing on the cutter shank immediately over the blades. Some also have plunging centres, which enable them to do jobs like setting a router insert plate into a tabletop.

I use them for a range of applications where the cuts are simple but need to be accurate. Here are some of them.

Edge-planing boards

If you're making a panel or tabletop by gluing together a number of boards, their

edges must be straight and square. The usual tool for this job is a hand plane or a planer thicknesser, but very accurate results can be obtained with a true straightedge and a template profiler in your router. The straightedge is fastened to the line of cut with double-sided tape, and the cut is made with the bearing running against the straightedge and the cutter spanning the thickness of the board, **photo 2**. The only limit on the size of job you can tackle is the length of your straightedge.

This method can be extended to a number of other everyday jobs such as trimming panels and components to exact size after rough cutting, if you haven't got precise sawing equipment. You will find it worthwhile to accumulate a selection of different size straightedges and different length profilers for different jobs, **photo 3**.

An instant straightedge

If you haven't got a straightedge and don't want the expense of buying a commercial one, go to your timber yard or DIY superstore and look in the MDF racks for the panel of, say, 4ft x 2ft with the best manufacturer's edge. Cut off a strip about 100mm wide (after you've bought it, of course!) with the manufacturer's edge on it and this will be your first straightedge from which you can make others as required.

Cutting rebates

A slight modification of the edge-planing technique allows you to cut a rebate with a template profiler. The straightedge (but it doesn't have to be straight, since the bearing will follow almost any shape) is taped to the workpiece on the line of the rebate, and depth of cut is set to the rebate



3
A selection of straightedges and template profilers will come in very useful



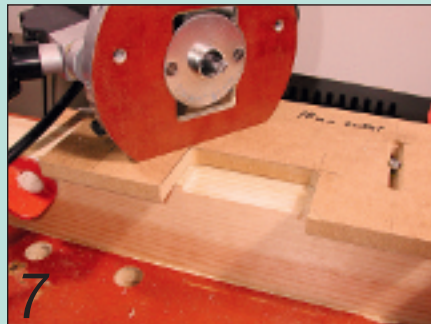
4
When rebating a panel, use a short profiler so you don't need a very thick straightedge



5
To make a hinge jig, draw the hinge and offset outlines on 9mm MDF



6 Clamp the workpiece and run the profiler around in a clockwise direction



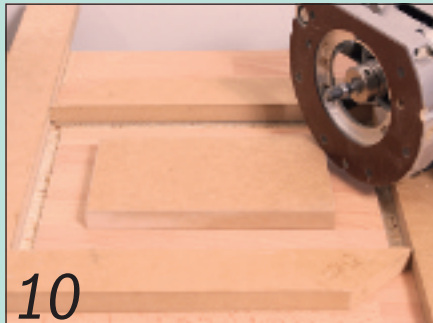
7 Using the jig to cut perfect hinge recesses; just the corners need squaring



8 In this jig, the slot in the MDF had to be the exact width of the intended guide bush



9 A selection of jigs and templates made with template profilers and straightedges



10 A perimeter cut for a router insert plate; make the cut clockwise in at least two passes



11 Different size template profilers can cater for many different applications

depth required. This is where a range of template profilers of different lengths will earn their keep. Use as short a profiler as possible so you don't need a very thick straightedge, **photo 4**.

Making jigs and templates

Jigs and templates aren't necessarily complicated, but they do need to be cut accurately, and a template profiler and straightedges are ideal for this.

An example is a basic hinge jig. This will be used with a guide bush, so the outline of the hinge is drawn on a piece of 9mm MDF and the offset line for the guide bush and cutter drawn around the first line, **photo 5**.

The opening is then rough-cut with whatever saw you have handy: hand saw.

Cut as close to the line as your saw allows, then trim to the exact size with the profiler and straightedges. Tape the straightedges to the pencil lines, clamp the workpiece overhanging the bench and run the profiler round in a clockwise direction, **photo 6**.

The profiler trims the MDF exactly flush with the straightedge and gives a perfectly square finish – much better than I could achieve with a saw and a rasp, **photo 7**.

Trimming cuts

A second example comes from my article, in the April 2009 issue of *The Woodworker*, about a housing /slotting jig. The slot in the MDF – which is the crucial part of the jig – had to be the exact width of the intended guide bush. It was drawn, rough-cut and trimmed exactly as above, **photo 8**.

Remember that these cuts are trimming cuts. Don't try to take off more than 2-3mm in one pass. Note however, that Titman offer a range of profile guide cutters that can be plunged through a skin such as laminated chipboard, to make them more versatile.

You will find this technique absolutely invaluable for making a wide range of jigs and templates, **photo 9**.

Router insert plates

Setting an insert plate into a router tabletop is another example from one of my previous articles, and is a good illustration of how profilers can be used in conjunction with guide bushes and straight cutters.

Position the insert plate where you want it on the tabletop and draw round it. Tape four straightedges to the pencil lines and put a piece of the same thickness MDF in the middle to prevent the router from tilting.

Put a short profiler in your router and set the depth of cut to a whisker deeper than the thickness of the plate. The idea of a short cutter is that the router can be partly plunged and positioned against a thinner straightedge than would be needed if it had a long profiler in it. Note that for this job the profiler should have a plunging centre so it can cut into the tabletop.

Now make the cut in a clockwise direction in at least two passes. This gives you an accurate perimeter rebate in which the plate will sit, **photo 10**.

That completes the profiler part of the job. The middle can now be cut out with a jigsaw, but a neater way is to leave the straightedges where they are, put a large guide bush in the router, install a long straight cutter and use the router to give a very neat opening.

The above examples give a taste of the usefulness and versatility of the template profiler. A range of different sizes caters for many different applications, **photo 11**.

2: ENGRAVING CUTTERS

Most boxed sets of cutters include a V-grooving cutter, intended for letting V-shaped grooves into the surface of a panel. A development of these is the engraver, which is designed for cutting incised letters for house names, and other

inscriptions. These are deeper and sharper than the normal V-groover and have several uses apart from lettering, **photo 12**.

Using as a pilot bit

It isn't easy to locate a router cutter accurately. There is no clear-cut centre line to work to, so it usually comes down to trial and error plus test cuts. A better way is to use engraving cutters as accurate pilot bits for applications such as mortising.

Mark the centre line of the mortise, install the engraving cutter and side fence, and position the router so that the point of the engraving cutter falls exactly on the marked line, **photo 13**. When you're satisfied, replace the engraver with the intended mortise cutter. A fine adjuster on your side fence is a great help in this operation.

The picture shows my basic mortising set-up. The workpiece is clamped to the bench top, the engraving cutter and side fence are used to position the cut, and an outrigger on the other end of the extra long fence rods prevents the router wobbling as the cut is made. When ready, the engraving cutter is replaced with the mortise cutter.

Making a centring gauge

When cutting a housing, the straightedge has to be laid off at a distance from the line of the cut to allow for the size of the router base and the cutter diameter. A quick way of doing this is to make a gauge for setting a straightedge the exact distance from the centre of the cutter, whatever its diameter.

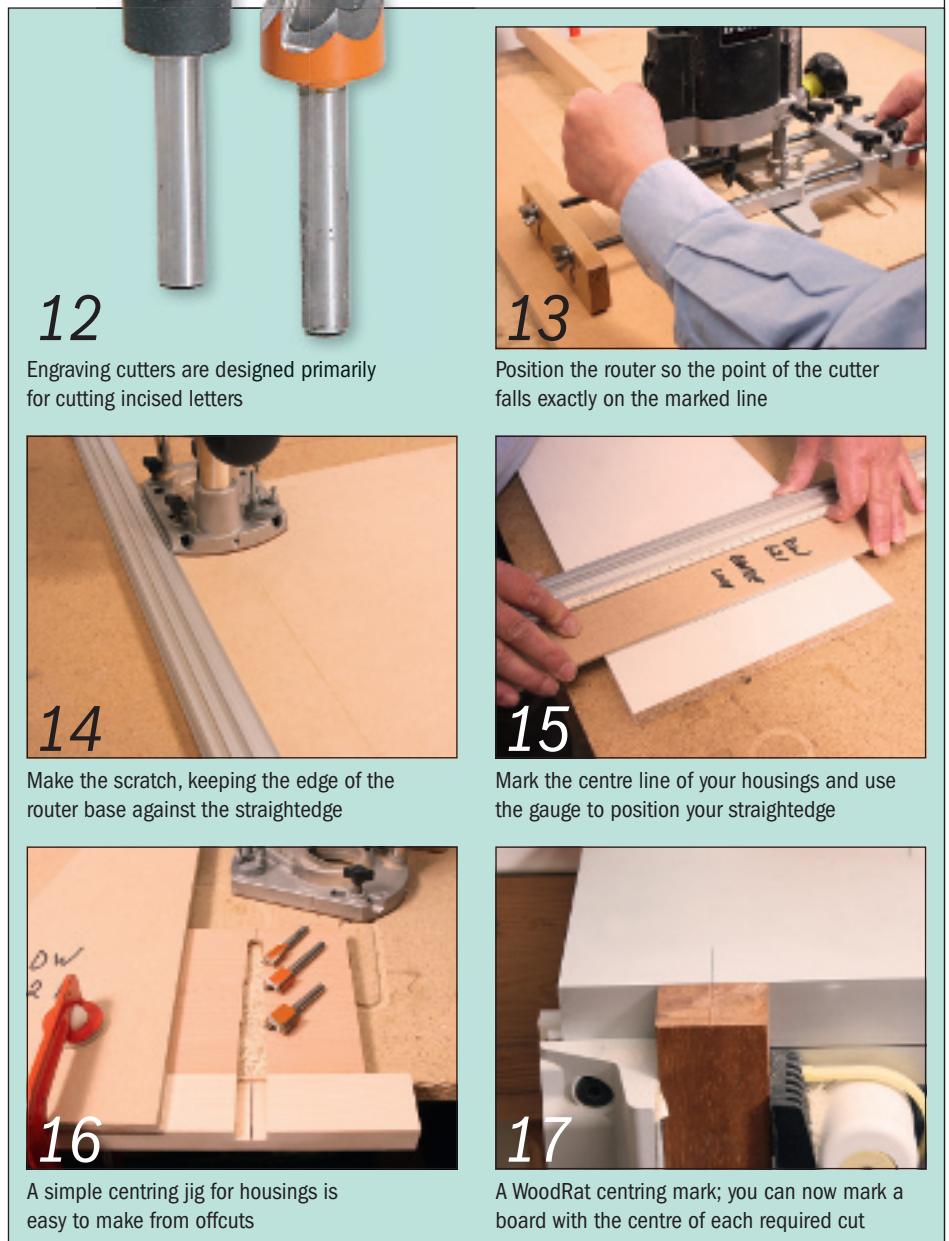
Put the engraving cutter in your router, take a straightedge and butt a straight piece of 6mm MDF up against it. Set the depth of cut to lightly scratch the surface of the MDF with the point of the engraving cutter. Make the scratch, being careful to keep the edge of the router base against the straightedge, **photo 14**.

Rough-cut the narrow strip off and trim it exactly to the scratched line. Go back to your template profiler and straightedge, and trim exactly to the scratch line. You now have a gauge that is **exactly** the width from the edge of your router base to the centre of the cutter axis.

To use it, mark the centre line of your housings and use the gauge to position your straightedge, **photo 15**. This works for almost any kind of cutter of any diameter.

A better version

The idea can be extended to make a slightly more elaborate version combining the straightedge and the gauge. Take a suitable piece of MDF, true up the edge and glue a straight piece of batten at right angles to it.



12

Engraving cutters are designed primarily for cutting incised letters

13

Position the router so the point of the cutter falls exactly on the marked line

14

Make the scratch, keeping the edge of the router base against the straightedge

15

Mark the centre line of your housings and use the gauge to position your straightedge

16

A simple centring jig for housings is easy to make from offcuts

17

A WoodRat centring mark; you can now mark a board with the centre of each required cut

When the glue is dry cut a notch in the batten with, say, a 3/4in diameter cutter. Then put the engraving cutter in your router and scratch a very shallow line across the bottom of the notch, being careful to keep the router tight against the straightedge. Mark the centres of your housings and position the jig with the scratch lined up with the marks, **photo 16**.

This jig is particularly useful for dovetailed housings because the shape of the cutter makes it difficult to position a straightedge.

3: A WOODRAT APPLICATION.

The above idea can be extended to make a very useful mark on the channel of the WoodRat. If you haven't got a WoodRat, skip this bit!

Put a squared length of wood – preferably hardwood – in the cutter position, and pull a very shallow scratch across it with the engraving cutter. Remove the wood and, without shifting the position of the clamps, put it in the marker position and draw a fine line from the scratch across the top of the channel. The mark indicates the exact centre of any diameter cutter – straight, dovetail or spiral. You can now mark a board with the centre of each required cut, and use it as a pattern board for your box or drawer, **photo 17**.

Finally, you could of course try using the engraving cutter for its intended purpose.

Next month I'll be looking at some of the more exotic router cutters available, and explaining how to get the best out of them.