In your Andy Standing takes a seat! TURNED box **February** issue.../

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# WOODWORKING Plans & Projects



ello and welcome to issue 64 of Woodworking Plans & Projects, our February issue.

Spring is, hopefully,

not too far away, so One Plank Project this month is one for the garden... a small chair. Andy Standing's come up with a fun design for you to play around with.

The Pocket Workshop Project this month is a simple stool, because, for some jobs, sitting down is the only way forward. (Particularly when drinking a nice cup of tea, I reckon!)

Incidentally, I've had lots of great feedback from readers who are enjoying the Pocket Workshop... I think it's a fair guess that most of us struggle with workshop space, and quite a lot of woodworkers have to manage in a shed.

When I look at US woodworking websites and mags, I'm always jealous about the amount of room they seem to have!

## incorporating

# ROUTER & POWER WOODWORKING

Our other main project is an unusual footstool, made by American woodworker Mario Rodriguez... it's a great little build, and one you'll enjoy, I'm sure.

Part three of Bullar Builds looks at the design process for furniture, and this month we are including detailed plans for his hallway settle.

Fred and Julie Byrne have put together a project for the romantics out there, a scrollsawn Valentine's message. I'm sure your partner will love it!

Our Anthony is looking at dovetails in his router class and, in Turning by Numbers, we show you how to turn a box. We've also got mini projects, and kit on test from Z-saw, Bosch, Hitachi, Scheppach, Veritas, Makita and Festool.

I hope you enjoy the issue, and please don't hesitate to give me any feedback via the email address below.

Job's a good un!

Matt Long, Editor Email:mattl@theqmcgroup.com

For the romantics out there, Fred & Julie Byrne's scrollsaw project is a must!

# LOOK OUT FOR OUR SPECIAL SYMBOLS



Our highest accolade for kit tests – one star is just not good enough



Don't miss out on these vital hints for better woodworking

### **SAFETY MATTERS**

Woodworking is an inherently dangerous pursuit. Readers should not attempt the procedures described herein without seeking training and information on the safe use of tools and machines, and all readers should observe current safety legislation.

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# OODWORKING Plans & Projects







# Workshop stool







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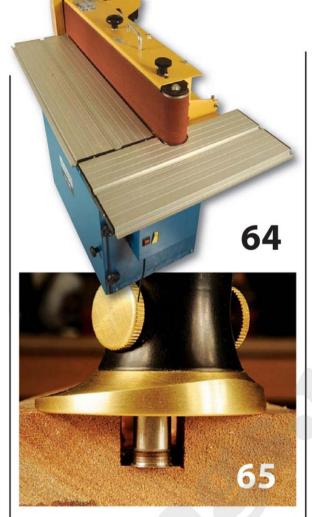
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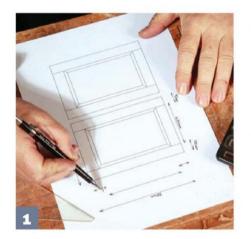
# **Design flexibility**

Published project articles usually start with a plan and a cutting list. This is great when you are using manufactured board material because it lets you put together a kit of parts and assemble them precisely following the instructions.

The same system can also be made to work with hardwood furniture, but there may be snags – quite often the wood available from the suppliers does not match the dimensions given so you have to tweak the design. Also, you may want to vary the design to bring out features in the wood, or else change it more radically to create a unique piece of furniture. Changing part of a design means you have to work through the cutting list and consider the knock-on effects to other components.

Being the wild organic stuff it is, attractive hardwood comes in all shapes and sizes. It is only once you have planed the surface of a board that the most appealing features start to become visible and you start to see how they might be shown off in your furniture.





Having drawn concept sketches of how the finished piece should look, fixed the overall dimensions and assessed the material available, the next stage is to draw details of parts to scale

# End boards ➤

This end view of a minimal coffee table is an example of flat board construction. Forget about the dovetailed corners, we won't be using them on this project, you may be relieved to know! The arched cutout neatly produces a pair of feet so the furniture will not wobble on a carpeted floor, which is ideal for the settle.

Notice from the grain pattern that, because of the width, each board is made in two halves invisibly edge-jointed together. The overall depth of the settle will be 400mm and the height 815mm. This width can be made up from two 200mm boards. However, it could equally be two 150mm boards and a 100mm board, whichever combination gives you the best results from the wood available





We have seen in the previous issue how straight edges are planed on boards. Edge-jointing requires this to be taken a stage further so that pairs of boards will match together. This can take quite a few shots to get right and so several extra millimetres should be allowed on the width of each board



One way to get extra confidence in edge joints is to hold them with biscuit joints. If the edges match well, the biscuits don't make much difference to the strength, but on poorly matched joints biscuits can provide most of the strength. They also help line up the joints while they are being glued



Edge joints need to have a thin, even glue layer applied. In this project we will use PVA glue because it is immensely strong, easy to use and fairly cheap



Once the glue has set, the boards can be unclamped and trimmed down to final size. In the case of the settle ends, the boards need to be  $800 \times 400 \times 25 \text{mm}$ . 25mm of the height will be hidden in a joint, as explained below



# Top rail

You can see here an example of a tapered housing joint, cut across the end of an oak board. This piece of furniture would be moved by its top rail, so the rail must be strongly attached. Because the rail's grain runs across the width of the board, they cannot be glued together all the way across. That would cause the board to split with wood movement. The solution is a strong tapered housing joint, which takes 25mm from the visible end-board length



### **Hand tools**

This project concentrates on handcut joints; the versatile solution to woodworking challenges. Size and shape vary infinitely to suit the geometry and materials. Although they cut slower, they provide fine adjustment and don't run out of control. Good quality hand tools will last a lifetime and are excellent value



This cutaway view shows a special version of the mortise and tenon that has internal wedges to lock it in place. Joints like this can be used to hold the frame and panel front onto the end boards



### **Back slats**

In this example we see an oak framed bed with a vertical railed headboard. It is lighter both in weight and appearance than a solid board. The same principal will be used for the back support of this settle project, but the cross section is increased to 80 x 25mm. Ten such rails will leave nine 44.5mm gaps



# **Machined** joints

We will also be looking at making some joints with machines, such as this Domino jointer. Tools like this provide speed and repeatability, which are most welcome on repetitive tasks such as fixing a series of rails. Using the Domino system also means that no extra length is needed for the joints



Router-cut joints like the tenons shown here also provide speed and repeatability, and routers come with a much lower price tag. In this case the tenon is part of the board so extra length must be allowed



# **Panelling**

Panels in frame and panel furniture are often made with a bevelled edge to fit into the slot inside the frame. A clean simple bevel can be made by hand with a plane as shown here; alternatively a router can produce various shaped profiles



## **Framework**

In the depth of winter when the air is bone dry, solid wood furniture can suffer damage by wood movement in a centrally heated house. However, well-constructed frame and panel work like this cabinet will have no problem. Frame and panel construction is a classic furniture making technique proven for more than half a millennium. Frames are made up from relatively narrow boards around the major dimensions. These provide an open box construction that is fully immune to seasonal wood movement



Because the bevelled edge of the panel fits into the slot inside the frame, the panel needs to be larger than the inside of the frame. The overall size to allow for this is 330 x 330 x 25mm. Alternatively, these can be built up from two 170mm wide boards, for example.

The rear has a single plywood panel which will be backed up against a wall, but if the settle is to stand in the middle of a room it can be made with three oak panels to match the front



The frames are joined at their corners by wide, thin mortise and tenon joints. To make a closed box, the frames have internal grooves to hold the loosely fitted panels. Allow an extra 50mm on the overall length of the horizontal frame members for this, making them  $1250 \times 60 \times 25$ mm. The vertical frame members need to be  $370 \times 60 \times 25$ mm to allow for the stub tenons



# Hinging

The lift up lid of the seat provides storage beneath for bedding, toys, shoes, etc. Good quality hinges have thick cast flaps, which would create a gap if screwed directly to the edges of the wood. Rebates are cut in the edges to avoid this so the seat can close tightly. The overall width of the base is 400mm. The hinged seat is  $400 \times 1200 \times 25$ mm. Because the hinges are attached to the horizontal rail behind, the front of the seat overhangs by 25mm

I hope this has helped to explain the design process and how the cutting list is built up with a view to possibly customising design variations. In the next part of this series we will look in more detail at joint-cutting methods using hand tools.

The plans for John's settle can be found in our pull-out, starting on page 37







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# BAILEY'S ROUTER CLASS

# Plinth with dovetailed drawer



**Anthony Bailey**makes a stand for a
doll's house

THE PROJECT

One thing we haven't looked at yet is how to make dovetailed joints. Whereas the mortise and tenon defines the joiner, dovetails are the province of the cabinetmaker, but creating them is not so easy because of the skill and time involved. There are ready made dovetail jigs on the market but they cost money and how often would they get used? So, I set to work to find a cheaper, homemade method that would suit the occasional use. In fact, I turned to my finger-jointing jig which I used to make a tea caddy in issue 46. I adapted this and, for once, that unused dovetail cutter that turns up in any starter set of cutters came in handy. I'm sure this method isn't new, but the main thing is it works. By coincidence, the editor of our sister magazine had a doll's house by Annina Günter (pictured, right) in need of a base to show it off properly, with a drawer underneath - a job for me then!



The unpainted plinth without the drawer furniture

he router is still the most versatile power tool there is. Along with a vast range of cutters, jigs and gadgets – many of which you can also make for yourself – it can help produce high-quality woodwork.

This series is intended to show you what the router can do, while assuming the reader has a general level of woodworking knowledge. We hope to show you the aspects of each project that specifically involve the router and how this great bit of kit can expand your woodworking skills.

Each month we highlight the jigs, cutters and gadgets you need to get more from this incredible machine. Feel free to send us pictures of your routing endeavours, or post them on the WPP forum at:

www.woodworkersinstitute.com

PHOTOGRAPHS BY GMC/ANTHONY BAILEY





This is the same as the one shown in issue 46 intended for finger-jointing. The only difference is a mitre protractor that slides in the top. You can always use it for finger-jointing if you have the original fence as shown here



A vision hole is needed at the front so you can see the cutter setting. This needs to be done before assembly using an inboard trammel



You need to make up an inverted 'U'-shape mini table, size isn't critical but take account of the unplunged router height. Cut out all the components with good square edges for gluing. Glue them all together to form the 'U'-shape, all clamped up square and you should end up with a strong table unit

Drill holes to mount
the router in the table
dead centre. Fit the
router with a straight
cutter attached and
plunge up through the
table top. It can now
be replaced with your
chosen dovetail cutter,
which isn't intended for
the previous plunging
operation





The mitre protractor has a bar that runs in the table slot. It should be a good fit and slide smoothly. It needs to be slightly thinner than the slot depth



A slot is machined in the top using a 19mm straight cutter which the mitre protractor will run in. It needs to be placed slightly to the side of the middle, where the router cutter will project through. Use a straight fence to run off the edge taking care not to let the router wander off course. The slot stops level with the intended cutter opening



Use a trammel to machine the curved protractor shape and the curved slot for the bolt. Both bolts are a tight, "threaded fit" in the bar and are countersunk in, carefully. Glue and screw the front board on, avoiding any screws in the path of the dovetail cutter. The rotation bolt has a captive nut to hold the protractor on and a wingnut on the bolt in the slot so you can adjust the angle easily

# THE CUTTERS

From left to right: the 6.4mm straight cutter is used with an inboard trammel to make the hole in the finger jointing table front and for drilling holes in the carcass that the doll's house sits on. The 19mm straight cutter is used to create the protractor slot; the 12.7mm straight cutter creates a hole for the dovetail cutter in the table top. The dovetail cutter is a standard one found in any set. Lastly, the carcass pads are bevelled with a bearing-guided bevel cutter which can be on a ¼in shank, although I used a ½in shank version





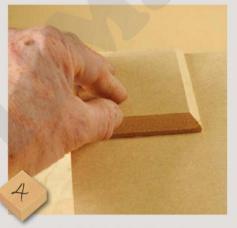
The first operation is to make the carcass that the drawer will slide into. This needs to match the size of the doll's house (or whatever) that sits on it. However, you may want to make a drawer and box like this to suit another large object so size it to that, instead. Make up a cutting list and cut out the parts



Butt joint all the components together using PVA glue. Ensure all the edges are flush. Use plenty of clamps to hold it tightly so the excess glue is exuded, and wipe off the surplus. For this task, butt joints are quite strong enough



The short legs are simply recycled bed legs with the castors and sockets removed. The screw threads need to go into thick enough material so we need to make special pads to give that extra thickness. A bearing-guided bevel cutter is used in the router table, with a breakthrough fence, to bevel the edges of the pads the legs will screw into. Note the slot cut into the breakthrough fence to allow the bearing to pass through when the fence is pulled back on to the moving cutter



Rub the glued blocks into place, lining them up with the edges of the carcass, and leave to set for some time as screwing the legs in could loosen the bond if not set properly. I was in a bit of rush and that's what happened to me!



Use a small router and a standard 6.4mm straight bit or a spiral router drill bit if you own one, to drill a hole in the centre of each pad. Mark the centre position first and set the speed to the lowest, and aim on to the marks, drilling deep enough to take the threaded rod on the leg. Now, simply wind the leg into the hole and the thread should bite and cut its way into the MDF and form a solid fixing

Now for the drawer dovetails. The fence is set exactly perpendicular to the table slot. This is done by holding a square against the fence and the table side which itself should be parallel to the slot. Note: a high subfence has been fitted to the existing lower one, so it gets cut and can be replaced if necessary. It is now ready to form the dovetails. In all cases the cutters used should protrude 0.5mm higher than the material thickness, so there is a little to sand off later. The neck of the cutter is marked on the table so the slot marks can be lined up

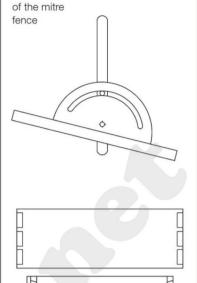




Mark the sub fence to line up the workpiece edge so the end slot is cut in the right place. To do the other end slot, flip the workpiece around and line it up to the original mark. Make a second mark on the sub fence for machining the centre slot. You should now have three evenly spaced slots forming two dovetails and two narrow half dovetails at the ends

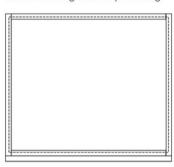


To cut the other half of the joints, carefully transfer the slot positions to the front and back boards ready to create the pins. The marks are then transferred up the external face of each board onto the face of the workpiece which will be visible on the outside of the drawer box



Here's a plan

The front and side (section) views of the drawer. Note the planted on front is missing in the top drawing



A plan view of the drawer, showing the recess for the drawer bottom



Set the fence at the angle to match the slope of your dovetail cutter blade – which can have an angle of between 102 and 105° – depending on the cutter you own. Sight down a dovetailed board set against the fence, until the tail is parallel with the table pencil line. Quite a lot of wood is to be removed, so a 9.5mm straight cutter is installed, and marks made on the table showing the diameter of the cutter. Line the pin marks on the workpiece up with the right hand of these lines and cut the first shoulder. Machine only the left hand side of each pin



Now, swing the fence to the opposite angle and machine the other side of the pin shoulder and then keep machining all the waste out between the pins. It really helps when doing this to clearly mark up your waste beforehand with hatched lines. The last shoulder is at the outside and you should be left with three, evenly sized, evenly spaced pins



The three pins look neat and even enough, but the acid test is always that the joints are a neat fit, and that they push together with just a tiny bit of resistance? After several trial attempts and learning how to get the best from the setup, here is quite a respectable joint



The drawer needs a base, of course, but without losing too much interior space. I opted to run the 6.4mm base slot right in the middle of the bottom pin and did so without any problems with drawer integrity. Rather than doing stopped grooves it is easier to run right through. Once the drawer is assembled the little slot can be plugged with a matching plug ■

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aving a picnic is one of the pleasures of summer; though our unreliable weather can make it a rather rushed affair. Sitting on the damp grass may not be everyone's idea of a good time, so here is a design for a two-part chair that can easily be carried and takes moments to set up. This project does involve a lot of sawing, so a table saw is recommended.



Begin by marking out your plank

- · Table saw
- · Jigsaw or coping saw
- · Bearing-guided roundover cutter
- · Pillar drill
- · Drill driver · Glue · Screws



Crosscut the components to length



And then rip them to width



All the slats should have their front edges rounded-over. Use a bearing guided round over cutter mounted in a router table



Take the four legs and lay them out on the bench. The ends touching the ground should be fully rounded, but the other ends only need rounding on their back edge. Find a suitable object to use as template



Use a mitre guide and mould the ends of all the slats first



A disc sander is ideal for shaping the ends, though you could also use a jigsaw or coping saw



Then do the sides. Doing the moulding in this order means that should any of the ends suffer breakout, they can be removed when you mould the side



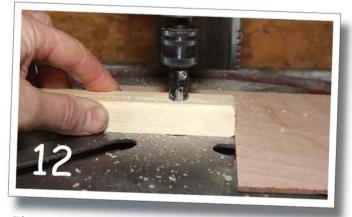
The next job is to assemble the seat. Lay out the four legs on their edges. The inner pair in the photograph are the seat bearers so the half-round end should be at the front. Place a slat across the legs and position them so that there is a 5mm overlap on each end over the outer leg



When doing repetitive drilling on a pillar drill, it is worth making a simple jig, like this, to hold the workpiece in position. Use the marked slat to set the jig accurately under the drill tip



Take a second slat and do the same further back along the legs to help align them. The slats will be screwed onto the inner legs. Mark the screw position on one end of one slat



This drill bores and countersinks the hole at the same time. Drill the ends of five slats



Start at the front of the legs and screw the slats in place. Use a spare slat as a spacer



Once the five slats are in place, ensure that the assembly is aligned by checking with a try square



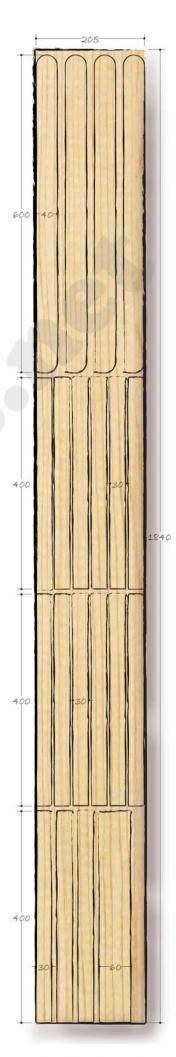
Now unscrew one slat...



... and apply some glue to the legs

Now re-fit the slat. Repeat for the other slats. This ensures that the frame will stay square. It is easier to do it in this order rather than gluing the slats to start with







Take the outer legs and mark a line on each of them 150mm from the rounded end. Using the seat to provide the correct spacing. Screw the support bar onto the legs with the top edge on the marked line



Now turn the legs over and fix one slat on the back with its bottom edge 200mm from the rounded end



The seat should now fit like this. Adjust the jig in the pillar drill and bore the remaining slats



With the seat in place, use a spare slat as a spacer and fit the first slat to the chair back



Now remove the seat assembly and fix another slat to the top of the seat back



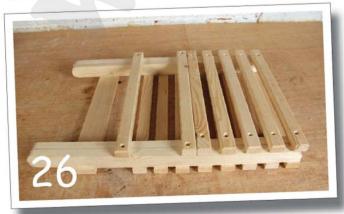
Lay out the remaining slats and space them evenly by eye. Then screw them in position



Turn the chair back over and slide the seat into its storage position. The rounded ends of all four legs should be flush



Take the last remaining slat and screw it into position onto the chair back, hard against the back slat of the seat



The completed chair with the seat stored behind the chair back



The finished chair



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# Turning by numbers... Box with a lid

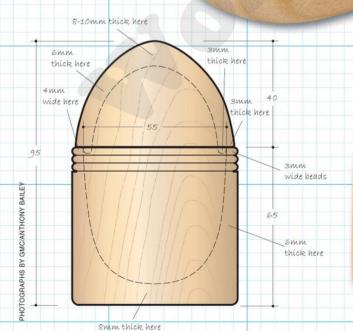
Bite the bullet with this great project

e've now covered most of the classic woodturning projects, bar one: the lidded box. This can seem like a very daunting project; but, in fact, with the right method, it is no more difficult than any of the other projects we've tackled. In fact, there are no new cuts or tools in this article.

Here we use the three-chuck method for making the box. This makes it easy to get a snug fit between box and lid, and also

ensures almost perfect continuity of grain between the box and its lid. So, take your time, follow this great turning method and you'll be boxing clever.

When rolling the beads around the box, we've used the 3mm parting tool to cut a "V" and then the same tool with a scraping cut to form the beads' curves





# Turning tools needed

20mm spinale gouge

20mm spinale roughing gouge

3mm parting tool

10mm beading/parting tool

First up, mount your spindle blank between centres on your lathe. For this box, a blank at least 150mm long and 80mm square will do the job. Ash was the timber of choice here... a good straight grained hardwood that will suit the box nicely. Then turn to a cylinder with the spindle roughing gouge.

Turn a spigot on the end, which will fit your scrollchuck... use your beading/parting tool. You can push straight into the timber, with a scraping cut, or use the bevel-rubbing mode. This end will be the bottom of the box.

Now you need to remount the blank using the spigot you've just cut. You then need to turn another spigot on the lid end, for remounting the lid later, with the beading/parting tool. Then start to shape the body and lid of the box with the spindle roughing gouge. Where you've just cut the spigot will eventually be the point of the lid, so shape as much as you can with this tool and then the spindle gouge.

A Next, mark the depth of the lid onto the revolving blank with a pencil

Now you need to cut the lid with the beading/parting tool, just below the mark you've just made. In this cut, you are forming the lip on the lid underside which will locate in the box's body, and also defining the inside of the box body.

6 Next, change to the 3mm parting tool to remove the lid completely. Enter into the recess already cut in step 5, but leave about 0.5mm of timber proud above the box's body. This edge defines the diameter of the box's interior.

Here you can see the raised edge left by the 3mm beading/parting tool. Next, you need to hollow the box's interior. Bring the tool rest across the blank, so that the gouge can enter the blank at the centre. Push the gouge straight into the blank with the flute pointing to 10 o'clock, so the gouge is cutting on the bottom wing. Push the gouge right in to full depth.

Once you've cut to full depth you need to hollow the box. Push the gouge 10mm or so into the hole you've drilled. Then swing the handle to the right, so that the shaft of the gouge pivots on the tool rest – you need to



Turn your blank to a cylinder with the spindle roughing gouge



Shape as much of the box lid as possible with the spindle roughing gouge



Forming the lid bottom with the beading/ parting tool



Making the drilling cut with the spindle gouge to the box's full inside depth



The beading parting tool cutting your spigot, here with a bevel-rubbing cut



Marking the lid onto the blank with a pencil



Removing the lid with the 3mm parting tool



Hollowing out the box inside by pivoting the gouge on your finger

have your finger behind the shaft and on the tool rest for the gouge to pivot on. The gouge tip should cut its way through the timber, with the bottom wing doing the cutting, and enter out of the front face of the timber. Keep repeating this cut, going deeper and deeper into the box, but don't cut wider than the raised lip left earlier.

Once you've hollowed the bowl to depth, and nearly to width, change to the French curve scraper to refine and clean up the box inside. You need to cut the width just to the edge standing proud on the front face. Remember, always use the scraper with the handle higher than the tool rest.

Once you've hollowed the bowl, present the lid to the box body, to see if you've a good fit of lid to box. The top edge of the box should be undercut slightly, to ensure the edges of box and lid fit tightly.

Now you just need to sand the interior through the grits, to a finish. Don't forget to sand in the lower left quadrant. Don't remove too much timber as you want your lid to fit nicely, and it is quite easy to get a bit carried away sanding, and lose the nice snug fit you've worked hard to achieve.

Now dismount the box body, and remount the lid using the spigot at the top of the lid. With the spindle gouge, clean up the front face of the lid bottom...

... ready for hollowing out the lid in exactly the same way as the body, in steps 7 to 9.

Once you've hollowed out the lid to the correct diameter, remembering to leave the lid lip at 3mm wide, or thereabouts, then sand through the grits to a finish.

Next undercut the edge of the lid slightly with the 3mm beading/parting tool, so that when it meets the similarly undercut top edge of the body, the lid and body edges will always meet without any gap, even if your timber moves slightly.

Again, do a test fit to make sure you've got a nice tight fit.



The French curve scraper finishing off the



Sand the interior through the grits, in the lower left quadrant of the bowl



... before hollowing out the lid, as with the body, but leaving a 3mm thick lip



The 3mm parting tool being used to slightly undercut the lid edge



Make a test fit of the box lid, to ensure it is a nice fit, but not too tight



Cleaning up the front face of the lid with the spindle gouge...



Now sand the lid interior through the



A test fit ensures the edges meet with no

Remount the box's body in the lathe then, using a folded wadding of kitchen paper across the top of the box, jam the box lid in place. You will have to judge exactly how much paper you need to get a tight fit. Then bring up the tailstock, and tighten it up, pushing the box lid onto the body.

18 Once you've done this, tear off the excess paper, and then return to the spindle roughing gouge to remove the lid's spigot and continue shaping the box as one piece. This way you get a perfectly continuous flow between the box body and lid. Use the spindle roughing gouge to rough as much of the shape out as possible...

19 ... before finessing and finishing the shape with the spindle gouge. Don't forget your bevel-rubbing, to create a lovely finish on the timber.

20 Now for the magic: remove the tailstock to finish off the very top of the lid with the spindle gouge... if you've jammed the lid on tightly enough, there should be enough friction for the lid not to work loose!

Once you've finished shaping, cut the small beads. The first bead is cut directly below the join between lid and box. With the edge of the parting tool, cut a 'V' between lid and box, then three 'Vs' below this, to delineate the bead edges. Then, using the straight part of the tool's cutting edge as a scraper, round over each bead.

22 Once you've finished the beads, you can give the outside of the box a good sanding through the grits to remove any blemishes or ridges. Be careful not to sand away the detail. Once happy, apply a finish of choice. In this case a few coats of oil burnished with kitchen paper.

Next, take the lid off the body – hopefully it will twist off. If not give it a few taps with a soft-headed mallet to loosen it! Then simply apply oil to the inside of the lid, and body.

24 Use the 3mm parting tool to remove the body from the spigot. Don't forget to undercut slightly, so the box will sit neatly. Then cut off any remaining nib after parting and apply oil to finish. Job done! ■



Jamming the lid on with kitchen paper and hand pressure



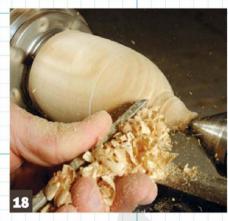
... before refining the shape with the spindle gouge



The 3mm parting tool is used to cut the bead curves with a scraping cut



After removing the lid, apply oil to the inside, and the body inside too



Shaping the lid and body with the spindle roughing gouge...



Remove the tailstock and finish off the lid with the spindle gouge



Applying the first coat of finishing oil with kitchen paper



Then simply part off, undercutting slightly to let the box stand securely

anufactured by Robert Sorby of Sheffield, the ProEdge is a revolutionary sharpening system.

Here at WPP we are delighted to announce we have teamed up with Sorby to give you the chance to win one of four Sorby ProEdge machines.

Central to the ProEdge is an abrasive belt which quickly allows you to put a keen edge on your tools. The cool running belt avoids any overheating.

The ProEdge also comes complete with aluminium oxide and zirconium belts. The system is also supplied with an angle setter which allows you to accurately locate most common sharpening angles required – though you can easily set your own from 15, 20, 25, 30, 35, 45, 60, 80 and 90°.

There is no complex setting up involved. In fact, the ProEdge can be used straight out of the box.

The ProEdge is ideal for those who need to sharpen carving tools, bench chisels, framing chisels, turning tools, plane irons, router bits, garden tools and much more.

There are additional attachments to help the turner overcome sharpening difficulties with skew chisels, standard and fingernail profile gouges. Honing wheels and buffing mops may be added to give the ProEdge even greater versatility.

To enter, you will have to answer the questions below, by going online at the Woodworkers Institute website:

# www.woodworkersinstitute.com

There, you will have to join the online community for free so you can enter the competition, which will be live on the website from 5 January, 2012

- 1. Where is the ProEdge manufactured?
- Name one of the uses of the ProEdge system

# **Competition rules**

The competition is open to UK residents only. Only entries completed via the Woodworkers Institute forum will be eligible. The competition is going live on the website on 5 January, 2012. The closing date is 1 March, 2012. No entries received after this date will be considered. No cash alternative will be offered for any prize, and GMC Publications reserve the right to offer alternative prizes to those mentioned. The judges' decision is final and no correspondence can be entered into. Employees of GMC Publications, associated companies and their families are not eligible to enter. Entries will be forwarded to the manufacturer, who will be responsible for providing the prize. By entering the competition, winners agree that their name may be used in future marketing by either GMC Publications or by the manufacturer. The winners will be notified by email.

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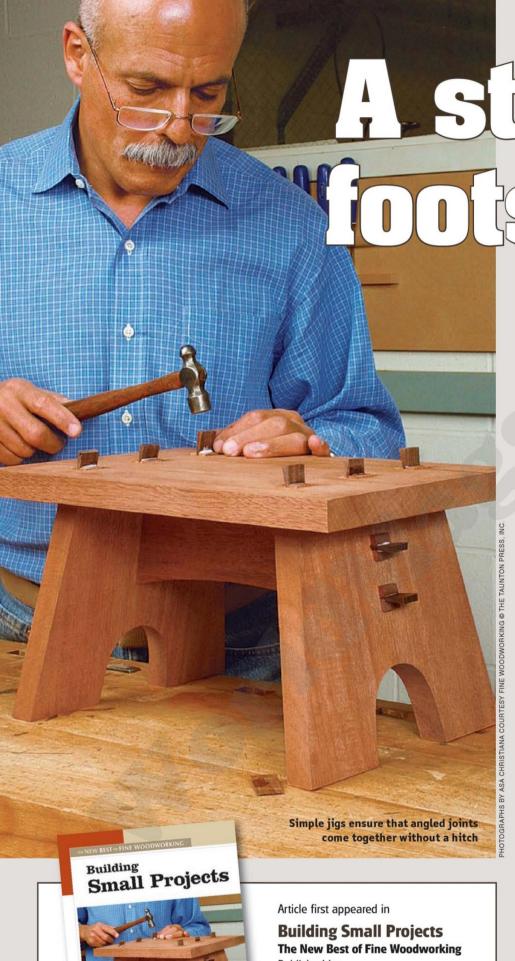
# Furniture & **Cabinetmaking**



Design and inspiration for furniture makers







**Mario Rodriguez** helps you put your feet up

hat top shelf is always just inches out of your reach. If you were a couple of inches taller, you would not have to trudge to the garage for that shaky, paint-spattered stepladder. At a time like this, wouldn't a neat little footstool be the perfect answer; tall enough to give the needed boost but small enough to tuck underneath a desk or in a corner? Small stools are a favourite with kids, helping them do things on their own, from sneaking cookies to brushing teeth.

Recently I built this sturdy stool in mahogany. This simple project is a perfect way to spend a woodworking weekend. It can be made of short scrap pieces or a single board 255 x 1270mm. It has just four parts (two of them identical), and only one type of joint to practice and perfect. It's a manageable project for a novice, but the angled through-tenons will offer a challenge to any level of woodworker.

### **Stability**

The height of the stool is about 230mm; a little taller than a typical stair tread, keeping it compact. Yet the step is large enough to easily accommodate two adult feet, side by side, with the splayed legs adding stability. As with the dovetail, I find the through-mortise-and-tenon joint totally irresistible.

I like the strong contrasting squares of end grain that break up the wood's surface. But this joint invites close inspection, so make it tight and clean. Unlike a single mortise and tenon, where a misfit can be fudged, this joint must be dead-on. Wedging the tenons fills gaps, but only in one direction. Making the joinery more complicated is the 10° cant of the legs. However, I've come up with some jigs and techniques that will make things much easier on you.

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## **FULL SIZED DRAWINGS MAKE A DIFFERENCE**

Don't taper the legs until all the joinery

All stock is 25mm thick

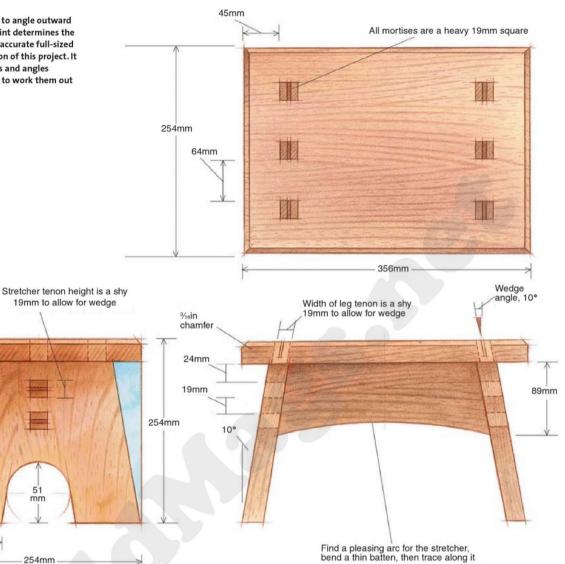
79mm ->

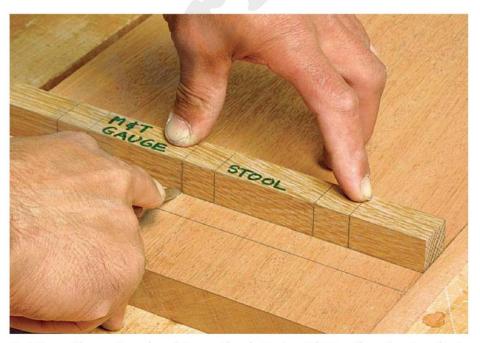
254mm

10

has been cut

The legs are tapered and canted to angle outward on all sides. The resulting footprint determines the dimensions of the top. Make an accurate full-sized drawing to guide the construction of this project. It will be easier to take dimensions and angles directly from your drawing than to work them out mathematically.





Mark the outlines and spacing of the mortises in the top. With two lines already scribed to mark the thickness of the mortises, use the layout gauge to mark the other edges

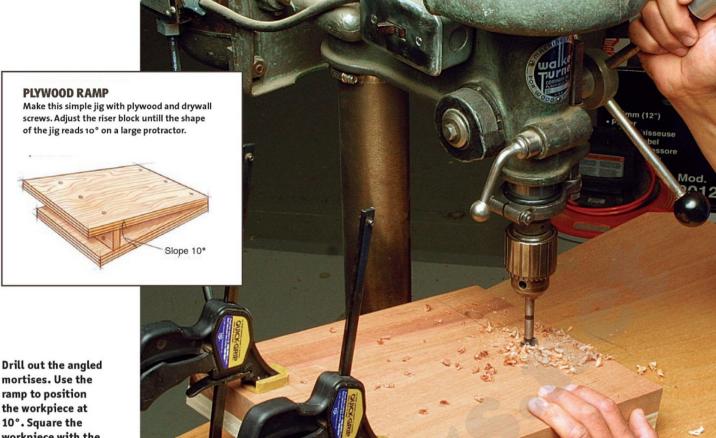
# Success starts on paper

I began this project by making a full-sized drawing. By laying the pieces on the drawing as you proceed, you can check the dimensions and angles of each part and the position of the mortises. After thicknessing the mahogany stock, rip the pieces to width, and cut them to length. Leave an extra 1.5mm of length for levelling the legs and trimming the through-tenons later.

# **Leg-to-top joinery**

The key to cutting these joints successfully is to lay out everything very carefully. Working from the drawing, mark out the thickness of the mortises across the top. Go 1.5mm more than the thickness of the leg tenons. This will leave a gap for the wedging action to come later.

For the horizontal layout of the mortises - which must be dead-on - use a layout gauge, which is a small story stick that



mortises. Use the ramp to position the workpiece at 10°. Square the workpiece with the edge of the ramp to be sure that the drilling angle is aligned properly. Then drill the mortises with a 19mm Forstner bit

will standardize the width and spacing of mortises and tenons. Transfer marks from your full-sized drawing onto a small stick; then use the stick to mark all of the mortises in the top and the tenons on the legs. For a clean outline, I use a sharp marking knife. Each mortise is a little larger than 19mm to allow a 19mm chisel to slip in easily.

# **Accurate angled mortises**

These mortises and tenons aren't straight up; they're angled at 10°. The key to a great fit is to ensure that the mortises are sloped very precisely, so the exposed tenon completely fills the mortise without any gaps. However, we'll work from the top side of the workpiece, where the accuracy of the mortise and tenon will be most evident, toward the bottom side, where the 3mm shoulders around the tenon will hide small gaps. So relax - a little.

Drill out the majority of the waste on a drill press - supporting the workpiece with a 10° ramp and using a 19mm Forstner bit (see the photo and drawing above). This makes the chisel work much easier. The other secret to cutting these mortises accurately is to use a chisel guide (see drawing, right). This is a simple jig made

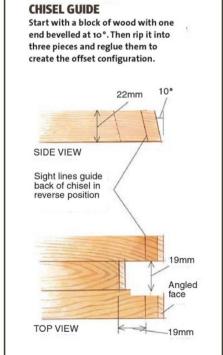
of three faces, each one cut to 10°. The center section, which matches the fat 19mm width of the mortises, is set back about 25mm. This pocket keeps the back of the chisel at the 10° angle and regulates the width of the mortise. The two angled sections that jut forward are used as a visual guide to keep the back of the chisel at the same angle when you work on the opposite angled wall of the mortise.

I square up the drilled holes with a series of chisels. I use a 6mm chisel to cut corners into the round holes and create a little room, then turn to my 12mm mortise chisel to ride the slope and sides of the guide block and cut the mortise to shape. Finally, I use a 19mm chisel to clean up the walls, flaring them slightly toward the hidden (bottom) side of the mortise, to allow easier assembly without compromising the appearance of the completed joint. Be sure to back up your workpiece with a piece of scrap to prevent blowing out the back of the mortise where your chisel exits.

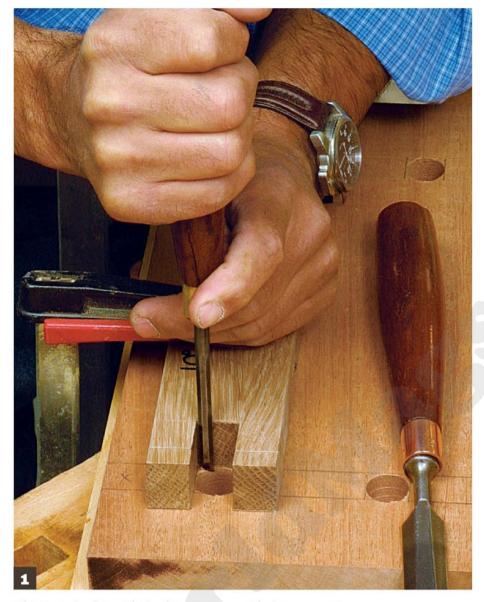
While you're set up to drill and square up the mortises, do the pair of mortises in each of the legs. Use the plywood ramp and the chisel guide again - but pay close to the direction of the angle in relation to the mortises. You don't need a layout

stick here, because the extra room for wedging adds a fudge factor to the spacing of these double mortises and tenons. As you proceed, check everything against your

# full-sized drawing.



# **THREE-CHISEL PROCESS**





...a 12mm mortising chisel to rough out

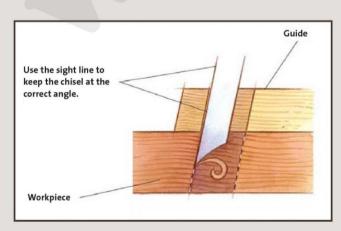


...and a 19mm chisel to clean up the walls

# With the help of the chisel guide, use a 6mm chisel to remove the corners...

# **Guide works both ways**

The chisel guide also helps you cut the opposite angled wall of the mortise. Draw a line on the wall of the chisel guide parallel to its front edge.



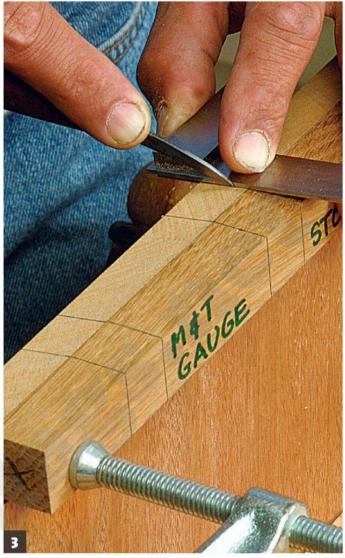




Cut the cheeks of the tenons with a router and tenoning cutter, using your router table and a sub fence. Note the different shoulder heights on each side



Once you've cut the tenon cheeks on the router table, then use a chisel to angle the shoulders



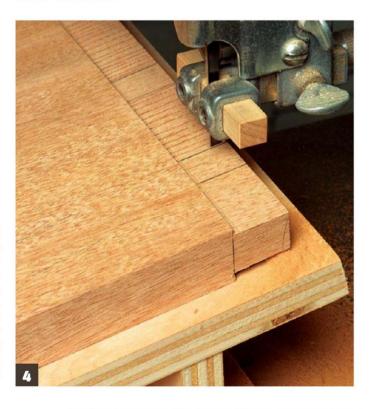
Use the same layout gauge for the tenons. There is no room for error here, and the layout gauge will ensure that the tenons match the mortises

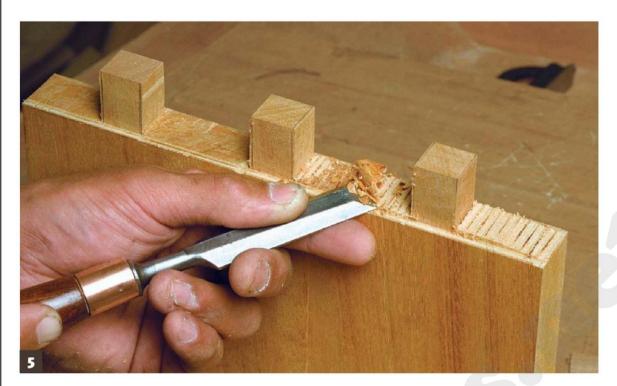
# The leg tenons

The next step in joining the legs to the top is to lay out and cut the leg tenons. Remember to leave them a little long, to be trimmed flush later. While the legs are still square (the sides untapered), cut the 3mm wide shoulders to their 10° angle on the chopsaw, working by eye to a layout line. The waste from the tenon cheeks can then be removed with a tenoning cutter on the router table.

Next mark out the width and position of each tenon using the layout gauge, and make the interior cheek cuts on the bandsaw. Use the 10° plywood ramp to make the bandsaw blade meet the tenon shoulders evenly.

Cut out the waste with a coping saw, then use a chisel to trim the shoulders and pare the cheeks. Monitor your progress by frequently placing the top over the leg tenons and looking down into the mortises Use the angled ramp on the bandsaw. This lets the blade cut all the way to the angled shoulder. Leave a little on the cheeks for paring, and cut kerfs into the waste areas





Fit the leg to the top. Clean up the shoulders with a sharp chisel, then pare the sides of the tenons, checking them frequently against their mating mortises

to see how the tenons are lining up.

As you continue to test-fit the pieces, note that the tenons should fit snugly across their width, but there should be wedging room left in their thickness.

## Add the stretcher next

Working from your drawing, lay out the stretcher. Cut the ends on the chopsaw to 10°. You ve already cut the mortises in the legs. Now you can cut the stretcher tenons using the same techniques and jigs as before; however, note that the stretcher tenons are angled in a different direction from the leg-to-top joinery. Once again, there is extra space in the mortise for the

wedging action. Start on the chop saw, cutting the outside shoulders and then cheeks on the router table. But before moving on, set the legs into the top and place the stretcher shoulders between them to check the fit.

When you are done cutting and fitting the tenons, bandsaw the curve along the underside. Again, you can clean up the curve with a spindle sander or with a spokeshave and cabinet scraper, as I do.

## The leg taper and cutout

The sides of the legs also have a 10° taper. Take the angle and dimensions off the full-sized drawing and cut just off the line

on the bandsaw. Then smooth the edges on the jointer or with a handplane.

Beside adding a little visual interest to the design, the leg cutout helps to overcome an uneven floor. Draw the arc with a compass, and use a sliding bevel to extend the lines parallel to the taper of the legs. Again, make the rough cut on the bandsaw, and then clean up the cutout with a spindle sander or with rasps, files, and sandpaper, as I do.

## Assembly is also tricky

This is a difficult project to assemble because all of the parts - and all of the mortises and tenons - must converge at once. First you should assemble different parts, placing the partial assemblies on the drawing and against each other to check angles and fit. After tweaking and adjusting the parts, dry-fit the whole stool.

Getting the stool together and apart again won't be easy. Some advice: work carefully, move slowly, and be patient. Then position your clamps and slowly draw the stool together. Listen for creaks and groans, and watch for splits. If you see the leading edge of the tenon splitting the top edge of a mortise upward, either tap the split area down with a mallet and small block, or trim the tenon.

Kerf the tenons for the wedges - before gluing up, saw a thin kerfinto the end of each tenon. This kerf will receive a small wedge, which will spread apart the tenon, locking it in place and closing the small gap. I find that a handsaw makes an appropriate kerf. Go about 19mm deep. Note that the wedges in through-tenons



The chopsaw is the easiest way to cut the stretcher ends to an angle of 10°

The parts all converge at once during glue-up. Dry-fit everything beforehand.
Assemble one leg and the top, the other leg and the stretcher, then drive the joints together carefully

should always be oriented against the grain surrounding the mortise; otherwise, the wedges, which pack a lot of punch, will split the mortised piece.

After applying PVA glue, draw all of the parts together completely. Let things set for roughly 15 minutes, remove the clamps and blocks, and tap in the wedges with a little glue on the tip of each one. A good angle for these small wedges is 10°. Tap them in until the gap around the tenon closes.

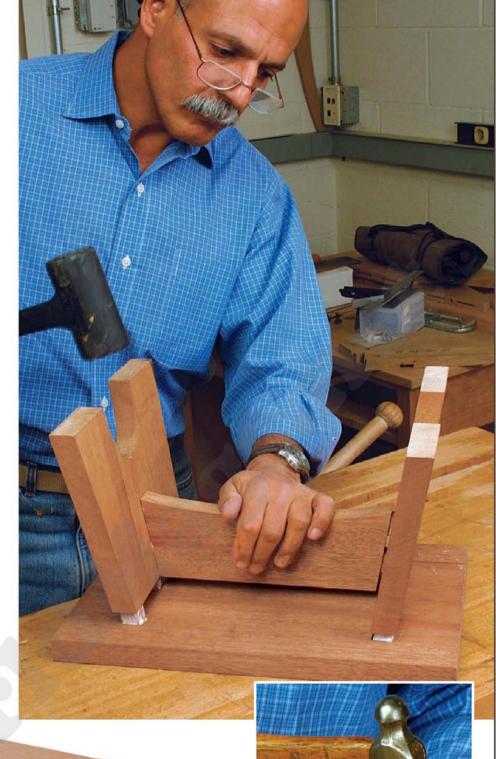
#### Finishing up

Leave the stool for at least 12 hours to let the wedges set up firmly. Then trim and plane them flush.

The last detail before sanding and finishing the piece is to chamfer the top. First, scribe lines 5mm back from the edge. Then, with a block plane angled at 45°, work down to the lines to leave a crisp, even chamfer. Of course, a router would also do the job, but I like the subtle character of handwork.

Mario Rodriguez is a contributing editor to Fine Woodworking magazine. He teaches woodworking in the furniture-restoration program at the Fashion Institute of Technology in New York City.

www.woodworkersinstitute.com





Walnut wedges add contrast. Cut the wedges to a 10° angle and tap them into the kerfs in the tenons until the tenons spread to fill the mortises

ISSUE 64 WOODWORKING PLANS & PROJECTS 35

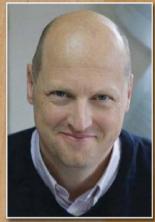
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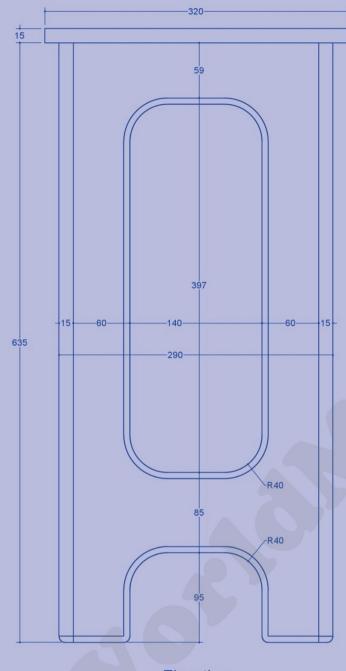
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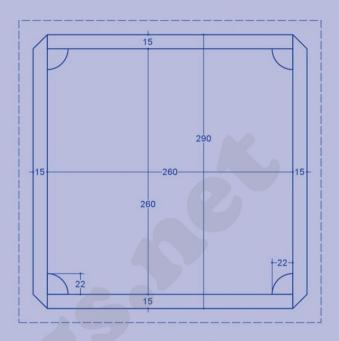
## Your free workshop stool plan



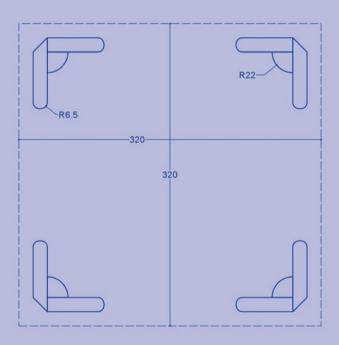
Elevation 1:4

**Cutting List** 

TOP 1 @ 320 x 320 x 15 SIDES 2 @ 635 x 260 x 15 SIDES 2 @ 635 x 290 x 15 QUADRANT 4 @ 600 x 22 x 22



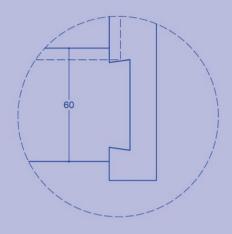
Plan/Section 1:4

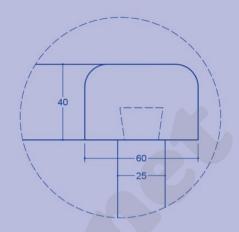


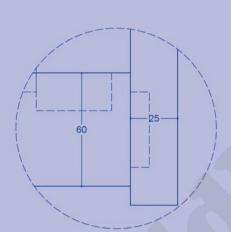
Plan/Section 1:4

## Your free settle plan

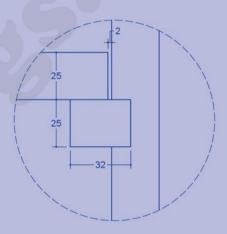








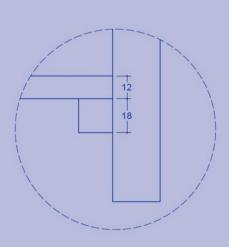
Details 1:2



#### **Cutting List**

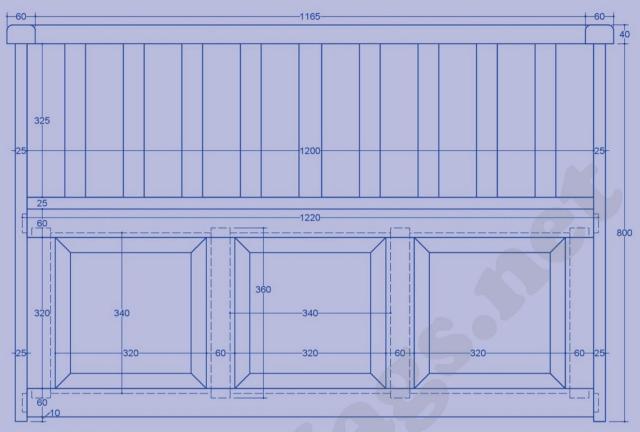
SEAT
SIDES
LONG SEAT RAIL
SHORT SEAT RAIL
FRONT LONG RAILS
FRONT SHORT RAILS
PANELS
BACK RAILS
BACK
BACK VERTICAL RAILS
BOTTOM
SUPPORT BATTENS

1 @ 1200 x 400 x 25
2 @ 817 x 400 x 25
1 @ 1285 x 60 x 40
2 @ 408 x 60 x 40
2 @ 1220 x 60 x 25
4 @ 360 x 60 x 25
3 @ 340 x 340 x 25
2 @ 1222 x 60 x 25
1 @ 1212 x 357 x 12
10 @ 359 x 80 x 25
1 @ 1200 x 350 x 12
4 @ TO FIT



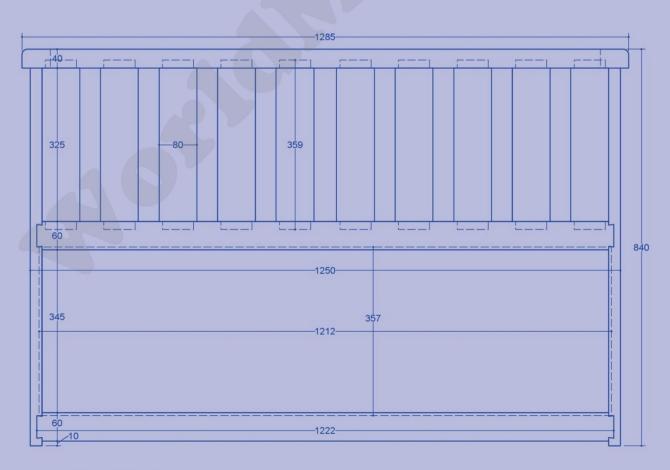


## Your free settle plan



Front Elevation

1:8

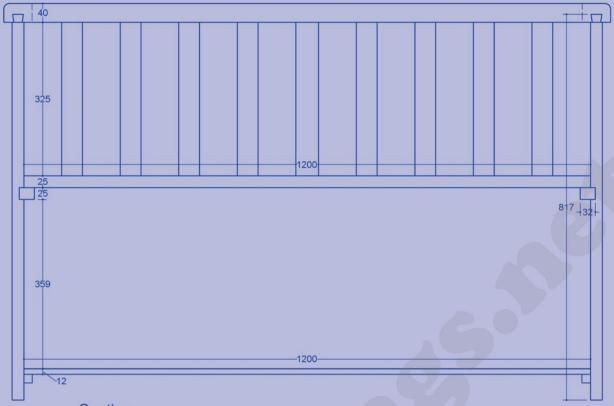


**Rear Elevation** 

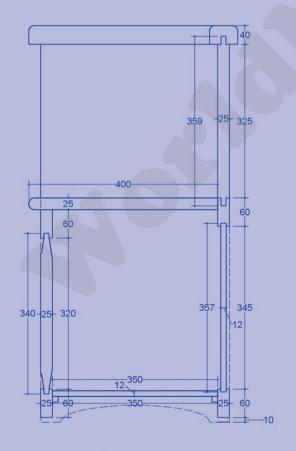
1:8

## WOODWORKING Plans & Projects

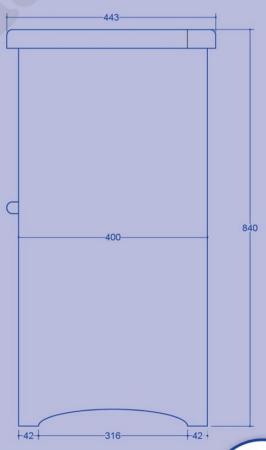




Section 1:8



Section 1:8

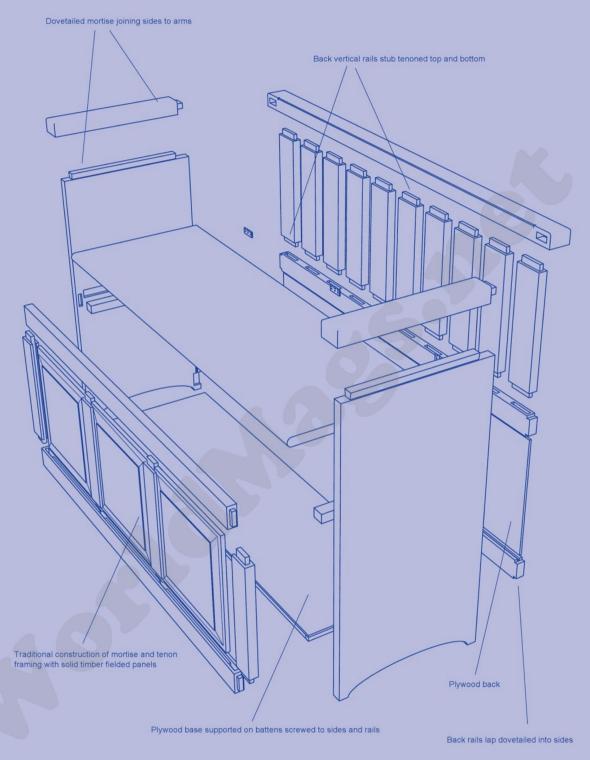


Side Elevation 1:8





## **Your free settle plan**



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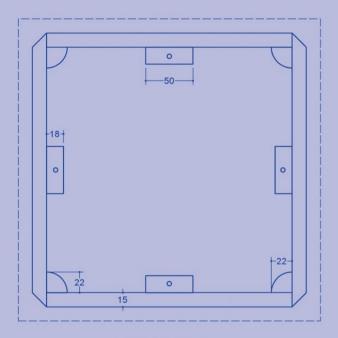


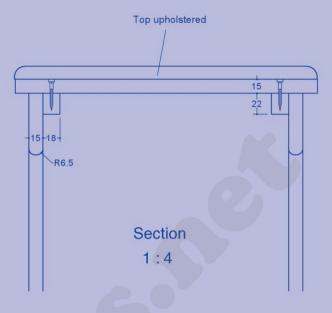
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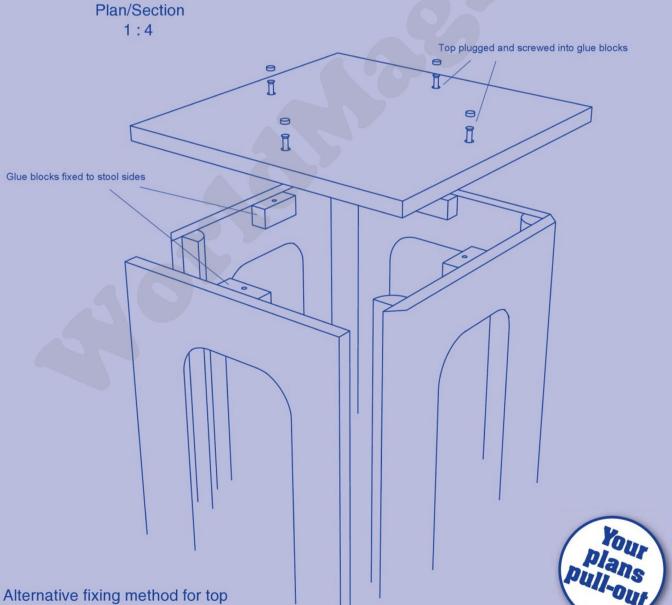
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## Your free workshop stool plan





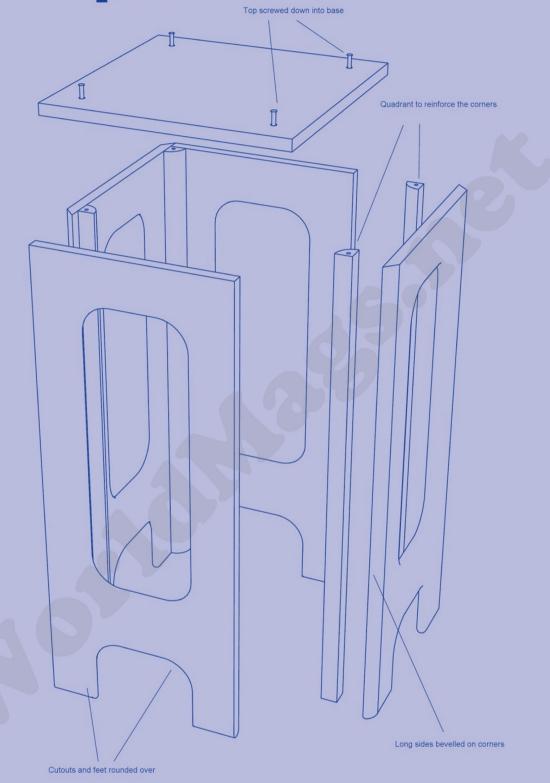






# Your free workshop stool plan

## **WOODWORKING Plans & Projects**



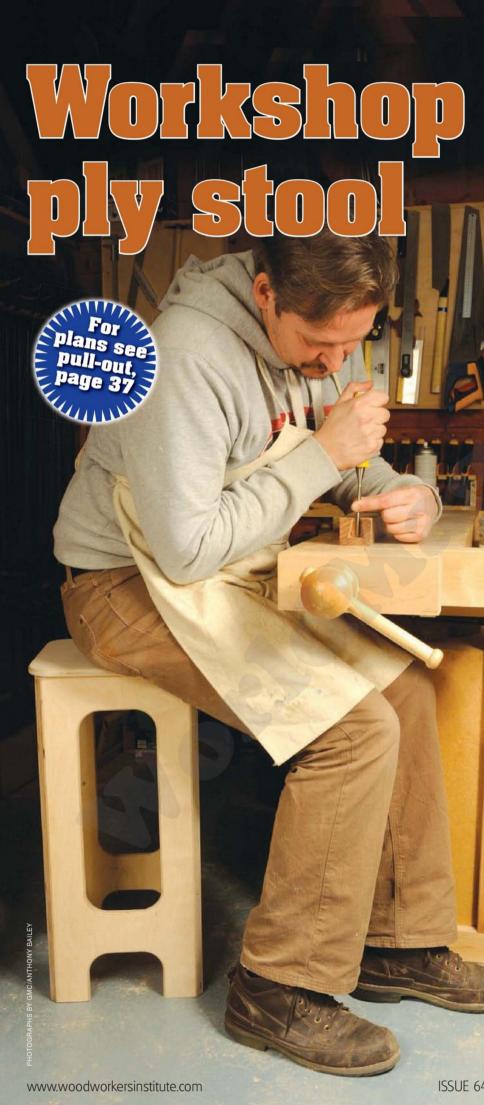
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**The editor** builds a seat in ply to save your back at the workbench

or our latest project for the Pocket Workshop, I thought I'd build something for those of us who are a bit tall for the workbench, and need help getting their eyes down to bench level for those intricate jobs.

And if you just want to sit down at your workbench with a cup of tea, so much the better!

So, project decided upon, just what sort of design would be right? It didn't need to be too fancy, as it is just for the workshop, after all.

With that in mind, I put my head together with Mr Bailey, and we came up with a design reminiscent of a small table I made for WPP a year or so ago.

The idea was to build the stool in 15mm birch ply, with the legs formed by a box section with cut-outs to create a kind of stretcher across the bottom of the legs.

In effect each leg will be made of a right-angled section of two butt-jointed lengths of ply. This provides strength, but is light, and quick and easy to make.

The similar small table I built for miniprojects has stood the test of time very well, so this seemed like a design that could work.

#### **Templates**

The most complicated part of the build will be the cut away sections which form the legs.

To form these, I decided to create a template so that I could rout the curved sections out of each side. Making templates involves more work initially, but it is always worth it in the end.

And, of course, once you've created templates, you can keep them for re-use at a later date.



You just need half a sheet of 2.4 x 1.2m ply and some quadrant for the stool

#### **Board cutting**

Not much material is needed for the project. Half a sheet of 15mm birch ply and some 25mm quadrant. Your timber merchant may sell half a sheet to you, and don't forget to check for any off-cuts going cheaply.

Measure and mark up your board ready for conversion into the final component sizes.

3 Size all your components up with the circular saw, or by hand if you prefer. Bench cookies are a brilliant way of lifting man-made boards off your bench surface, so you can cut or rout them without worrying about fouling your bench top. I used a straightedge to keep the saw cutting true. Don't forget to fit a blade with a high number of teeth made for board cutting, or else you will not get a nice cut and lots of splintering.



... before drilling the hole which will take the trammel's pin, which will be a screw



This hole needs countersinking so the screw head is flush with the jig surface



Mark up all your components as accurately as possible

#### A jig and a template

The cut-out sections on each leg need a jig and a template to complete them. You need an in-board trammel jig to cut out the curved corners of the template, which will be used with a bearing-guided template cutter, to shape each side of the stool.

The in-board trammel jig allows you to cut radii that are less than the distance between router cutter and edge of the router base. To make one, create a square of 6mm MDF with its corners cut off, that is a little wider than the largest side of the router base. Then drill and countersink holes that will take screws appropriate for your router base. Then fit a straight plunge cutter to your router,



I cut the components out with a circular saw and a straightedge to guide it



Drill the cutter hole for the in-board trammel with the base screwed in place...

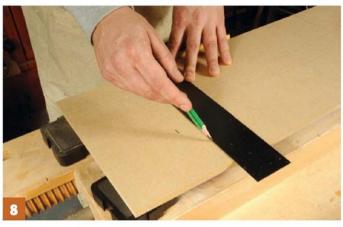
screw your jig to your base so the centre of the jig coincides with the centre of the cutter, and then carefully plunge your cutter through the jig.

You now need to remove the jig.

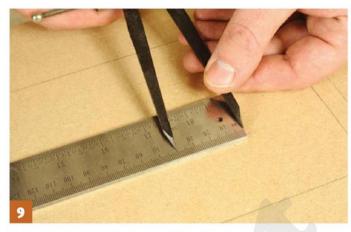
5-7 For cutting the curves with a 40mm radius, measure from the outside of the cutter hole, across the cutter hole and 40mm along a diagonal across the jig. Then drill a hole that will take a screw that will be the trammel pin. The pin will protrude below the jig when fitted to the router base, so countersink the hole on the face of the jig opposite the face with countersunk holes for the router base screws. Your jig is now ready to help cut your template. Simply screw it to the router base.



The jig screws to the router base. You can see the screw which forms the trammel pin



Mark up a piece of 6mm MDF which will be your router template



To find the hole for the trammel jig pin set a compass to 40mm



And use this to find the centre of the radii for your template curves

Mark up the template for your recess on 6mm MDF. I made the mistake of using too small a piece of MDF for my template, which made routing the template a bit more difficult later on. Use a nice large piece of MDF, and mark up your 390 x 140mm rectangle which will form the inside of the template.

- Then set a pair of compasses to 40mm.
- **10** Use the compasses to find the centre of the hole which will take the trammel pin.
- 11 Then drill the hole which will take the pin, making sure it is a



Drill a hole to take the in-board trammel jigs pin

nice tight fit, to stop the router waggling around and producing a rough job.

12 You are then ready to cut the corners of your template. Locate the trammel pin in the hole you have drilled. Then start up your router with its straight cutter in place, and plunge into the MDF.

Once plunged in, then rotate the router around the trammel pin, so the cutter describes an arc that will touch both edges of the corner drawn on the template.

Switch off the router, let it stop, and then lift off your router. You should have cut a circular slot as wide as the cutter, which just touches either side of the



Locate the jig pin in this hole. Plunge your router in, then rout out the curve

template lines. Repeat this procedure for all four corners of your template.

13 Next cut out the rest of the template waste with the jigsaw. But cut a few millimetres inside the line, as you will be straightening it up with the router in a few minutes.

14 Now you've got to use your router and its fence to clean up the long edges of the template recess, joining up with the curves cut with your router and in-board trammel jig.

This method only works if your template outside is square to the recess. Alternatively you could use a straightedge with the router.



Cutting between the corners with the jigsaw



Straightening up the template sides with a router and fence



Clean up the inside faces of your template with abrasive



Mark a centre line on the template's face and inside edges



Also mark a centre line and the top of each opening on to the birch ply



Then drill a starting hole for the jigsaw in the waste section



Mark the opening on your birch ply using the template as a guide

Now clean up your template with sandpaper. It is crucial the template is spot on, so once finished, measure it up, and check for any problems. If the template is wrong, your stool will never be right, so if you are unhappy with it, just make another one. Better to waste a bit of MDF rather than the expensive birch ply. You will use the template to cut the main opening and the smaller opening at the bottom of the leg components.



Tack the template in place, ready to use the router to finish off the opening

#### **Cutting the legs**

**16** Mark the centre lines across the faces and edges of your template.

17 And then mark the centre line on your leg components and the positions of the top of the openings you are cutting.

18 Next you need to line up the template on the leg components



And then jigsaw out the opening, leaving a few millimetres of waste inside the line

#### Workshop Wisdom

If you make a template for any router job, it's always a good idea to try and keep it, if you have the room. You never know when you might need to rout a similar shape again!

and draw around the inside of it to transfer the shape onto the ply.

19 Drill a starting hole for the jigsaw in your birch ply.

Then cut around the inside of the line with the jigsaw, leaving a few millimetres of waste.

21 You are now ready to use the template with the router to clean up the edge and create the flowing lines of the stool. Tack the template in place over the leg component in exactly the right position.



A bearing-guided cutter runs against the template and removes the waste

Your router needs to be fitted with a top bearing-guided template cutter. The bearing runs against the inner edge of the template, and then the bit cuts to this profile. Be very careful setting the router depth of cut, so the guide runs only along the template.

Then move the template and tack it in place over the bottom opening in the stool sides and repeat the routing process, only using the top half of the template to clean up the bottom opening of the leg.

24 After completing all the legs, use a 6.4mm bearing-guided round-over cutter to shape the edge of the leg cut-outs.

25 Once done, give all the components a sanding. No need to go mad here and go down to a very fine grit, as it is only a workshop stool!



Give the sides a good sanding before assembly



And hand sand the curve you've cut on the inside edges of the opening



The template can be used to cut both openings in the stool sides

26 Give the rounded edges of the cut-outs a good hand sand to remove any cutter marks.

#### Seat top

The seat top is next. To cut this to shape, make up another MDF template exactly the size of the seat top.

Then draw around this onto the birch ply. Rough cut this out with the jigsaw, and then tack it in place for a final routing with the top bearing-guided cutter again.

Alternatively, you could just jigsaw the shape, and smooth the curves with a spokeshave, before sanding the edges off to a nice smooth curve.



After routing out the opening, a bearingguided roundover cutter finishes the edge



The stool top is a flat piece of ply. Here the corners are rounded off with a jigsaw



Round over the top and bottom edges of the seat top with the bearing-guided roundover cutter



Then sand the top and bottom faces to a finish...



... before sanding the rounded edges, as well



The sides are just glued together, with quadrant being glued in place down the joint for extra strength



Clamping up the sides... you can never have enough clamps!



I pinned the quadrant in place to keep it in place while the glue goes off

Then take the roundover cutter to the top and bottom edges of the seat. Always try and keep your router moving, and don't go too fast, that way you should get a nice, burn-free finish from the cutter.

29-30 Then give the top a good sanding too. First of all the top and bottom faces, and then the edges.

**31–32** Now for glue up. I glued and clamped the four edges together. This can be a bit of a tricky clamp up, so get someone to help you if possible.

Next glue and pin the quadrant the full depth of the stool legs for extra strength. Modern PVA glue is very strong, and this jointing method should be more than strong enough, and



Email pictures of your finished projects to our Readers' Forum: mattl@thegmcgroup.com



After putting a chamfer moulding on the edges of the legs with a router, I tidied up with a block plane



It was then a case of sanding off any glue marks on the faces of the stool legs

this is particularly true after the stool seat is glued in place, too.

After the glue had set. I used a large 45° cutter to chamfer off the edges of the stool, and then planed and sanded off the edges, before giving the legs a quick sanding to clean off any glue marks.

I just glued the top in place, spreading a nice layer of glue over the top edges then applying pressure with a heavy weight.

To reinforce the joint between top and sides, I glued and pinned blocks on all four sides. An alternative method, shown on the plans, is to screw and glue the top in place.

I gave the stool a few coats of spray on lacquer, just to help the stool last. And there we are, a simple design for a workshop stool, that shouldn't take too long to build.



After sanding, I glued the top in place, using the thicknesser to apply pressure



A few coats of spray lacquer, de-nibbed in between coats, gives a nice finish



Applying glue to one of the blocks which will help glue the top in place

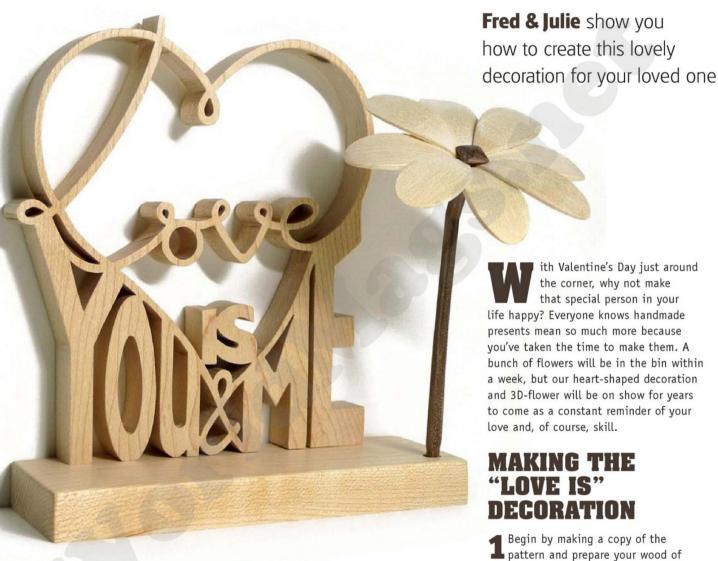


And there we are... job's a good un!

38

# PHOTOGRAPHS BY FRED & JULIE BYRNE

# Romantic gift for Valentine's Day



ith Valentine's Day just around the corner, why not make that special person in your life happy? Everyone knows handmade presents mean so much more because you've taken the time to make them. A bunch of flowers will be in the bin within a week, but our heart-shaped decoration and 3D-flower will be on show for years

to come as a constant reminder of your love and, of course, skill.

#### **MAKING THE** "LOVE IS" DECORATION

- Begin by making a copy of the pattern and prepare your wood of choice by sanding both surfaces smooth, going through the grades of sandpaper. Then attach the pattern onto the best surface using either a glue stick or spray
- Next, fit the pillar drill with the 3mm bit and drill the blade entry holes.
- Thread a No.7 reverse tooth blade 3 through one of the small frets and begin by cutting out all the smaller pieces first.
- Then carry on and cut out the larger

#### What you need

- · Scrollsaw No. 7 reverse tooth blade
- · Patterns
- · Wood of choice see cutting list for measurements
- · Pillar drill 3 & 5mm drill bits
- · Sandpaper 180, 240 & 320 grit
- · Masking tape
- · Glue stick/spray adhesive
- · PVA wood & superglue

#### **Cutting list**

- · Heart-shaped "Love Is" decoration - 152 x 140 x 16mm
- · Base 150 x 50 x 16mm
- · Flower Petals 360 x 25 x 19mm
- · Flower Stem 115 x 50 x 19mm





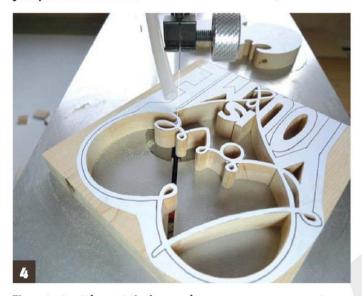
Here's what you need. To start, attach your pattern to the wood



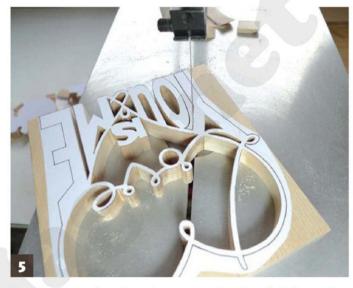
Fit the drill with the 3mm bit and drill the entry holes



Start by cutting out all the smallest pieces first



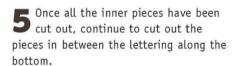
Then start cutting out the larger pieces



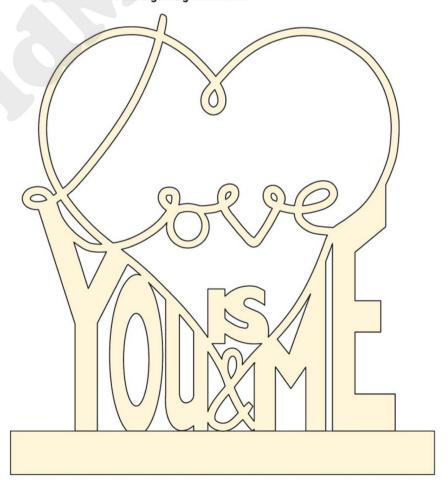
Once the inner pieces have been removed, cut out in between the lettering along the bottom



After cutting out the corners, sand away any burr and slightly round over the edges



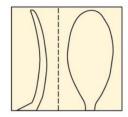
Then finally cut out the perimeter returning to the corners to remove the waste. Sand away any burr and slightly round over the edges. Cut the base section and drill the 5mm hole in the corner for the flower stem.

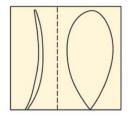


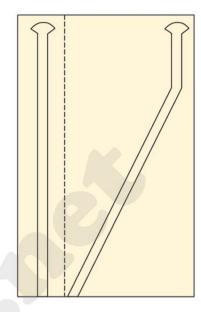
#### Fred and Julie's Compound Class

ompound sawing is not a difficult process but it is a simple way of achieving some amazing results. You cut around two patterns that are attached to two adjacent sides of a block of wood. There are a couple of points to remember to attain good results:

- Make sure the wood you use is square and straight
- Fold the pattern evenly along the dotted line and then line up with the edge of the wood when gluing
- Make sure that the scrollsaw blade is set 90° square to the table; a small square is useful for checking this
- Start with a new blade and let the blade do the work; do not exert too much force on the blade as this will lead to distortion. The blade should be very taut to minimise wandering, particularly when using hardwoods
- Stay on the cutting line or just to the outside, try not to go towards the inside of the line especially when cutting the thinner, more delicate, pieces





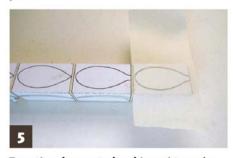




Prepare the wood, cut out the patterns and glue onto a wood of your choice



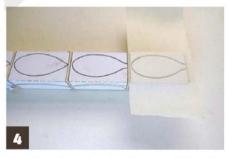
Starting with a petal, cut around the top pattern first



Turn the piece onto its side and to make the second, cut along the petal to the tip



Fit your scrollsaw blade and set it 90° to the table



Once the piece is cut out, secure it into its position with tape



Back up the blade and cut along the other side. Slide the petal out from the block

#### MAKING THE 3D FLOWER

Now, using what you've learned above start by making four copies of each of the upper and lower petal patterns — eight in total — and one of the stem.

- Prepare the wood see cutting list cut out the patterns and fold along the dotted line, position and glue onto your wood of choice.
- 2 Fit the scrollsaw with a No. 7 blade or blade of choice, use a small square to make sure that the blade is then set exactly 90° to the table.
- 3 Starting with a petal, cut around the top pattern first.
- Once the piece is cut out, secure it in its position by wrapping the whole piece with clear or masking tape.
- 5 Then turn the whole piece onto its side and cut along one side of the petal to the tip.
- 6 Back the blade up and cut along the other side to release the petal. Slide the petal out from the block and discard the outer waste.



Cut the empty petal section off of the main block and cut out the other petals

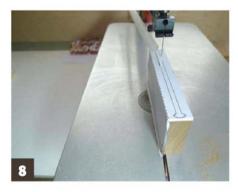
**7** Cut the empty petal section from the main block and start on the next petal; carry on in this way until all the petals are cut out.

When cutting the stem, start by cutting though the tall, thin side first as this is the trickiest. This 50mm depth of cut is just about the limit most scrollsaws can handle.

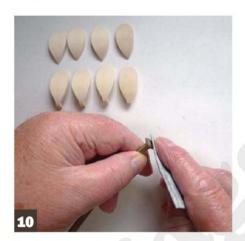
As with the petals, secure the stem pieces together with masking tape before making the second cut to reveal the stem within.

Hand sand the stem and petals smooth with fine 320grit sandpaper. Next, prepare for gluing by first wiping away the fine dust. Lay the pieces out in order and have to hand an old artist's brush and a damp cloth.

11 Start by applying a small amount of Superglue to one of the lower petals where it meets the stem, position and hold the petal approximately 2mm down from the underside of the centre piece – we suggest Superglue at this stage merely for its quick



When cutting the stem, cut through the tall, thin side first

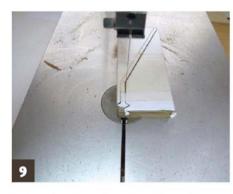


Hand sand the stem and petals. Prepare for gluing by wiping away the dust

drying properties – but feel free to use whichever glue suits you.

12 Once the four lower petals are dry, apply wood glue to the underside of the upper petals where they rest on top of the lower petals and a small dab of glue on the top where it sits just under the centre of the stem.

13 Use the old artist's brush to wipe away any glue that may ooze out before it dries.



Secure the stem pieces together with masking tape for the next cut



Superglue the lower petals onto the stem one by one



Once the lower petals are dry, apply glue to the underside of the upper petals

We have chosen to use a liquid polish to finish the pieces as it is easy to apply and does not require a nib down between coats, but again the choice is yours.

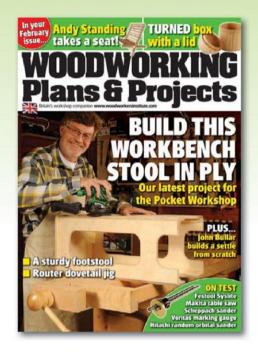


Use an artist brush to wipe away any glue that may ooze out before it dries



Use a polish of your choice to finish the pieces

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- Self standing with magnetic feet and flat back.
- Injection plastic moulding with plastic rule. 60mm wide aperture.



# Mini Projec WPP's great ideas to kick off the new gardening season

### DIBBER



#### You will need

- · Hardwood blank
- · Lathe & kit
- . Spinale roughing gouge
- · Spindle gouge
- · "V" tool
- · 3mm parting tool
- · Beading/parting tool

Every gardener needs a dibber for planting those seedlings, either in the potting shed, or out in the garden itself.

This dibber is quite a simple turning project: take a nice close-grained hardwood blank about 250mm long and about 50mm square. A nice hardwood like beech is ideal for this, but a softwood blank would do the job nicely as well.

Mount your blank between centres and with the tool rest just below centre height, turn the blank to a cylinder with the spindle roughing gouge. You want your dibber to be a nice fit in your hand so a 40mm diameter will be about right.

Next start shaping the dibber with the spindle roughing gouge. You should be able to create the handle shape where it meets the shaft of the dibber with this tool, and form the sloping shape of the dibber shaft, as well.

Change to the spindle gouge to start forming the ends of the dibber. You might want to reduce the diameter of the blank above the handle with the beading/parting tool, to allow you to shape as much of the handle as possible.

Once you are happy with the shape, and by now the dibber will only be attached to the waste by a small diameter spigot at each end, then it's time to cut the depth lines on the dibber.

They are 25mm apart. Just push in the "V" tool to a consistent depth for each mark... a few millimetres should do the job nicely. Now you've finished cutting, sand through the grits, to a finish you are happy with, and then you can apply a few coats of oil to finish. Then simply part off the dibber and clean up the ends with abrasive and apply a little bit of oil.

#### **POT STAND**



#### You will need

- . 75 x 25mm or 100 x 25mm softwood
- 50 × 25mm softwood batten offcuts
- .38 x 16mm softwood
- · Two hinges · Rope
- · 40mm panel pins
- · Screws · Exterior wood finish . Handsaw . Hammer
- · Adjustable mitre square

Ever wondered how to create a cascade of plants without a fuss? Our neat ladder pattern pot stand is the perfect

None of the dimensions are critical and can be whatever materials you can get hold of.

> The design is much like a ladder in that you have two strings at the sides, which are angled at roughly 55° from the ground, and

battens across at the back.

These are simply screwed in place through the strings. Then you have trays fitted between the sides which are probably best made from waterproof ply because of their width, which will keep water in them. A flat section is pinned around the outside edges to keep the pots in place. The batten behind each tray will stop the pots falling off the back. To hold the ladder assembly up, there are legs at the rear with a cross piece to hold them together, again made with a simple screw construction. Use a couple of hinges to hold it on to the ladder and, in the old fashioned ladder method, drill holes and fit knotted ropes through both ladder and legs to stop them sliding apart. Lastly, apply a suitable water



**58 WOODWORKING PLANS & PROJECTS ISSUE** 64

#### **HEXAGONAL PLANTER**



If ever there was an exercise in using a chopsaw, then this is it. Really this is a batch production job, and as such it makes sense to set up your chopsaw so you can repeat cuts at will.

You can adjust the size of the planter to suit whatever it is you want to put inside it.

The best way is to set a stop on one side of your saw, clamped to a fence. With the blade set to 60°, the stop should let you cut lengths of the 75 x 25mm to just over the required length for each block. Then cut all your blocks out. You should be left with 30 blocks with one angle cut on one end.

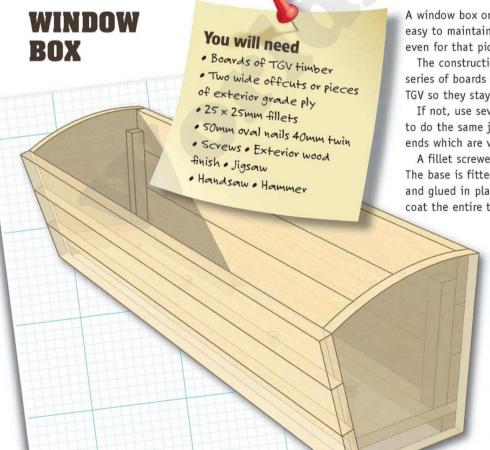
Then reverse the blade angle, so that it is 120°, to cut the other bevel. You then need to reset your stop on the chopsaw fence, so you can cut the second bevel on all the blocks, to cut all your blocks to their finished length.

Now it's time to build your planter. All of your pieces should fit together nicely, and you can glue them all in place. You might find it easier to glue together one layer at a time,

www.woodworkersinstitute.com

screwing through each block into its neighbour – but do this on the inside faces only, where the screw holes will be hidden by what you put in the planter. Then pile each layer up, screwing and gluing into the one below. Each successive layer will hide the previous layer's screw holes, until you reach the top layer, of course.

This layer can be screwed through its inside face into the layer below, again hiding the screw holes. Or, you could just glue it in place, holding it steady with a heavy weight until the glue goes off. For the base, just route a rebate around the inside bottom edge, and pin or screw the ply in place, before screwing and gluing four feet in place. You will want to drill drainage holes in the ply base, too. Then treat the whole thing with a preservative finish, and it's ready for use!



A window box or boxes enhance the look of a property, are easy to maintain and perfect for town or city dwelling, and even for that picture postcard look if you live in the country.

The construction of this one couldn't be easier. You need a series of boards to make up the front and back, preferably TGV so they stay together.

If not, use several vertical battens screwed on the inside, to do the same job. These boards are nailed or screwed to the ends which are vertical at the back but angled at the front.

A fillet screwed in each corner reinforces the construction. The base is fitted inside all the other components and nailed and glued in place. You need to drill some drain holes and coat the entire thing in a water resistant finish.

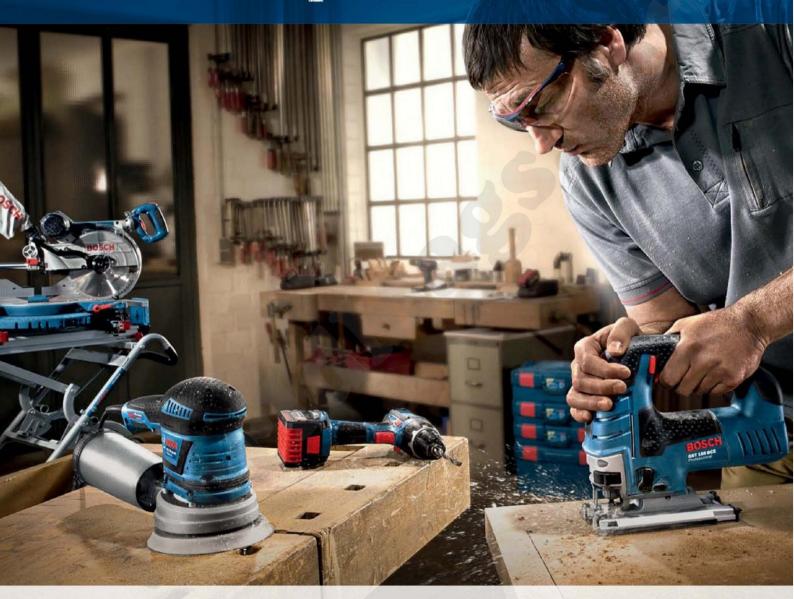
The last job is to put the window box in place and I would suggest if it is placed on an upper storey window ledge, that you fit loop eyes to it and the outer window frame with retaining wires or nylon ropes so it cannot accidentally fall off when loaded with soil and plants.

All you need now is some rain and sun for a vibrant window enhancing display. Of course, this design can be modified to make boxes of all different shapes and sizes.

And there we are: four great designs to help you with your gardening in the spring. Enjoy!

ISSUE 64 WOODWORKING PLANS & PROJECTS 59

# Real Bosch Wood. Passion. Technology. Bonus promotion.



From 1st July until 31st December 2011, each time you as a professional tradesperson purchase from a wide selection of qualifying Bosch Professional cordless and woodworking power tools you can earn points with which you can claim a FREE BONUS (subject to availability). For details visit http://bonus2011.real-bosch.com/gb. Please read terms & conditions available on the claim form that can be downloaded from the web-site.







# ON TEST THIS MONTH

WPP's Technical Editor sees if this Bosch kit is on the level

#### P62 Utility Z-saw

Matt Long sees if the Z-saw

## P64 Scheppach

sees if this Scheppach's

#### **P65 Veritas dual** marking guage

## **P66 Makita table**

## P67 Hitachi random





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- Model: GLM 80 + R60 Professional
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- Measurement time: 0.5 sec (typical)
- Power supply: 1 x 3.7V Li-ion battery
- Automatic deactivation: 5 min
- Memory capacity: 10 values
- Typical price: £185.94 inc. VAT

#### WHERE TO BUY

www.bosch-professional.com

## Bosch GLM 80 + R60 Professional Laser Rangefinder

Our Anthony has Bosch in his sights

This is, actually, two devices in one: a straightforward spirit level with a recess to take a laser rangefinder and inclinometer.

Starting with the GLM 80 on its own, there are a series of buttons to configure it for each mode, starting with the function button.

For distance measuring, Bosch suggest doing calibration checks using a known situation between 1-10 metres in length, such as a room.

Measurement is very easy, with a claimed accuracy of plus or minus 1.5mm. The optional tripod will help with accuracy here.

You can set any of four different positions on the range finder as your datum, with a flip out point specifically for working from corner.

Although there are various measuring and calculating options available, one of the most useful to me is the volume setting. In this mode you take three readings in a row: length, height and width and, hey presto – the total volume is then displayed.

The angle reading mode is possible using the GLM 80 alone, but for more accuracy it is best clipped into the R60 measuring rail.

To do periodic calibration of the tool, Bosch advise resting it on a table, measuring and then turning it around to do a reverse check against the first.

#### **Verdict**

This combined piece of kit is very assured, as it can do so many things that can be hard to do quickly and easily, if at all. It has rechargeable Li-ion cells giving up to 25,000 measurements between charges, so it should be ever-ready.

Z-saw utility blade and handle

**Matt Long** gets to grips with a saw for all seasons

We've tested quite a few Z-saw products, and have found them to produce great results.

Z-saw are now selling a blade larger than a flush cutter and smaller than a standard blade, the Handy Utility saw H-200 – here paired with the straight H-150 handle – so I thought I'd put this kit through its paces.

The blade is appreciably smaller than the standard, and with the small handle, is easy to carry around – Japanese craftsmen carry such saws around on their toolbelts! For this test, I decided to cut a few dovetails in a piece of birch – not what it's

designed for, but a good test, I thought. I found the saw to be easy to control, great at starting off, and with very good feel.

#### The verdict

I'm having one! I can see all sorts of uses for this saw in the workshop, and on site, and it feels balanced, and all for £16.62 inc. VAT, with the handle.

#### AT A GLANCE

- Compact body with tapered fore-blade
- Impulse hardened high quality teeth



#### WHERE TO BUY

- www.woodworkprojects.co.uk
- Tel: 0845 862 1410

# Festool Syslite

**Derek Jones** puts a portable lighting system to the test

ight emitting diodes (LEDs)
can be seen on everything from
bus tail lights to Christmas
decorations, and are set to become
the standard issue where a low energy
light source is required.

As a means of generating light LEDs are supremely efficient. Unlike incandescent lamps (halogen or tungsten) that produce light as a result of generating vast amounts of heat through a strand of wire, LEDs run practically cold. In the case of the SYSLITE this means that all the power



What's in the box? 1 x SYSLITE, 1 x mains charging adaptor, 1 x 12V car charger and 1 x soft carry case

in the 7.2V built-in cell is put to good use. The SYSLITE has two light settings: 100% and a reduced setting of around 30%, further increasing operating time.

The diodes are contained behind a frosted lens that diffuses the light, achieving a 170° beam. The quality (by LED standards) is warm white and not the cold blue cast that can cause distortions in perceived colour temperature.

SYSLITE can be mounted on a tripod using the ¼in socket in the base and I made good use of this by spotting imperfections in a dining table needing some TLC.

This is by no means the only option. Built into the case is an open hook to hang the unit and a sliding back plate allows the lamp to be angled forward while resting on the work surface.

Working time is 1.5 hours at full power and 4 hours at the reduced level. SYSLITE can run directly off of any Festool battery from the BPC

#### THE NUMBERS

- Power: 6 x 3 wall LED
- Internal battery: 7.2V 2.2Ah Li-ion
- Charging time: approx. 2 hours
- Operating time: internal battery: Setting 1 - approx. 1.5 hours Setting 2 - approx. 4 hours
- Stand thread dimensions: 6.35mm
- Weight: 0.67kg
- Price: £138 inc. VAT

#### **PROS & CONS**

- Great light quality
- Wide even beam
- 4 power options
- Long working life

#### WHERE TO BUY

www.festool.co.uk

#### **5 STAR RATING**

Value for money: \*\*\*\*
Performance: \*\*\*
Build quality: \*\*\*

or BPS range. When it comes to recharging the unit there are two options: via a mains adaptor or from a 12V car socket. In both cases the unit can be powered from these, too.

#### The verdict

Festool seem to have got all the bases covered with the SYSLITE. It's well constructed and you can use it as a single task light or to boost existing light in all manner of situations. Being able to run off an external source adds to the flexibility of the device.



**AT A GLANCE** 

■ Multi-purpose sanding machine

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

- Sturdy steel construction
- Easy belt change

#### THE NUMBERS

- Motor 2.9kW input: 240V
- Rotational speed: 2,850rpm
- Traverse table: 790 x 220mm
- Lateral table: 525 x 220mm
- Belt length: 2,000 x 150mm
- Belt speed: 13m/sec
- Weight: 105kg
- Price: £1,295 inc. VAT

#### **PROS & CONS**

- **✓** Versatile
- Easy to move between functions
- Poor extraction

#### WHERE TO BUY

www.nmatools.co.uk

#### **5 STAR RATING**

Value for money: \*\*\*\*

Performance: \*\*\*

Build quality: \*\*\*

**Derek Jones** takes a look at this versatile sander

ith the exclusion of calibrating drum sanders, perhaps, sanding machines are not as widely recognised as precision instruments. But don't let that put you off, there's a lot you can do with a combination machine like the Scheppach KSM2000, though it's obviously for someone with a larger workshop.

Before you can get down to business with this machine there's a fair amount of self-assembly and some of it will require a second pair of hands.

The KSM2000 has two adjustable working platforms that allow you to work the length of the belt and one end between 47° and 90°.

There's scope here for numerous shaping applications and some finishing work with a selection of different grit belts.

Working at the end platform is very

similar to that of a bobbin sander, but far more vigorous, therefore better for rapid waste removal.

With a fine grit abrasive some delicate shaping can be achieved. It takes a deft hand to avoid flat spots and indents but that said, a little practice and you could get some good results.

There's no rise and fall to this platform, so for extended use and to avoid wear to one area of the belt you might try working off an additional platform. Sanding machines in particular require an efficient and effective means of extraction and the KSM2000 is designed with its own integral system built into the bottom chamber which doubles up as the base cabinet.

Although a really neat idea, in practice it falls short of being adequate. After only a few minutes' use at the end platform a significant layer of dust had formed on the machine and no doubt everywhere else in the workshop.

There are two options for working along the length of the belt; one in a vertical position and one horizontal. The height of the side platform can be raised as well as canted over to 45°. The platform will accept a mitre fence so that reasonably accurate angles can be set. It's worth noting that like all belt sanders there's a margin for error here as the belt is effectively suspended in mid air between two rollers and not fixed to a plate like a disc sander.

Belt changes are also quick to do. A single knob, again at the rear, releases a drop-down shield to allow a new belt to be fitted.

#### The verdict

The KSM2000 is aimed at the adventurous home woodworker, I feel. It's undoubtedly capable of performing a multitude of functions all of which I have attempted to do in the past with a hand-held belt sander. Having a dedicated machine and therefore workstation for the sole purpose of shaping has definitely got some appeal.



he Veritas dual marking gauge has two independently adjustable rods with wheel-type cutters fitted to each end. One cutter has its bevel facing in and the other one facing out, making it ideal for marking mortises.

The stems can retract fully into the head, allowing the cutters to be used individually, which is useful, although it felt slightly unbalanced in this mode. Having said that, the gauge is perfectly comfortable to use with a good weight.

Setting is easily done thanks to the rubber "O" rings contained within the body, that maintain a light but



The dual wheel marking gauge has very many uses

constant friction, and prevent the rods from sliding back and forth when you least need it. The hardened steel wheels cut the wood fibres, rather than tear them, even across the grain.

The wheels are vulnerable to damage but can be fully retracted into the body when not in use.

#### The verdict

This device is really well made, as you would expect from Lee Valley, and has a number of features that make it a useful addition to any toolbox. I found that a little wipe of wax over the brass faceplate helped to reduce the friction between timber and metal, and made use far smoother. It's not cheap, however!

#### **AT A GLANCE**

- Independent adjustable rods
- Replaceable wheel cutters
- Rubber "O" rings for easy adjustment

#### THE NUMBERS

- Price: £47.95 inc. VAT
- Replacement wheels: £3.40 inc. VAT

#### **PROS & CONS**

- ✓ Beautifully made
- Applies clean cut lines
- Not cheap

#### **WHERE TO BUY**

From www.brimarc.com

#### **5 STAR RATING**

Value for money: \*\*\*\*
Performance: \*\*\*
Build quality: \*\*\*

TOGRAPHS BY GMC/ANTHONY BAILEY



Anthony Bailey volunteers for some sawing

akita don't just make handheld powertools they also produce lightweight static machines.

Since most of us are working in restricted workshop spaces or on site, we thought it was worth checking out a Makita table saw.

The MLT100 table saw is one of two similar machines in the Makita range. Both are relatively lightweight constructions, although this one is heavier by 8kg, according to the spec – although I'm not sure why there is this degree of difference.

Both machines have a similar cutting capacity – not just in blade depth of cut of 93mm at 90° but also the size of board you can cut.

The other table saw, the 2704, can apparently rip a 2440 x 1220mm board by pulling out the table extensions, and this one seems to

be similarly able, although it isn't stated on their website.

In fact what makes this saw stand out is the ability to handle very large boards (with help) and the sliding table to the operator's left.

The mitre protractor slides easily in the main table slots but becomes tight in the sliding table slot.

It then acts as a wide panel crosscutting saw. So, despite the rather light build quality of aluminium, pressed steel and a plastic moulded base, it can tackle some large scale work.

The main fence can be adjusted to suit board cutting, or moved backwards for cutting solid timber. It has a front push down locking lever with a metric scale on the fence rail.

The brush motor isn't quite as powerful as the 2704 model, but still enough for most tasks. The front

#### AT A GLANCE

- Professional brand
- Lightweight
- Large board capacity

#### THE NUMBERS

- Model: MLT100
- Power: 1,500W
- No load speed: 4,500rpm
- Blade dia.: 26 x 30mm bore
- Depth of cut: 93mm at 90°/64mm at 45°
- Main table: 610 x 590mm
- With sub table: 760 x 790mm
- Weight: 38kg
- Typical price: £319.20 inc. VAT (saw table only) £454.76 inc. VAT (with wheeled stand)

#### PROS & CONS

- ✓ Good brand
- ✓ Portable
- ✓ Big capacity
- ★ Lightweight build
- Noisy motor

#### WHERE TO BUY

www.makitauk.com

#### **5 STAR RATING**

Value for money: \*\*\*\*

Performance: \*\*\*

Build quality: \*\*\*



controls are pretty conventional, allowing rise and fall and tilting the arbor up to 45° for bevel cuts.

#### Verdict

I like a saw table to be all cast iron solidity, which, of course, modern saws are not in this mode. This saw also has slightly less power than the 2704 model.

Having said that, it does what you expect of it; it cuts cleanly and straight and square and handles substantial boards to boot. A competent saw table if you don't want to run to cast iron in terms of weight or cost.

# Hitachi random orbital sander



he SV13YA is a random orbital sander with a 3.2mm orbit, that is also quite compact in size and shape.

It is decked in Hitachi's now familiar jungle stripes with all upper black areas being grippy, vibration absorbing rubber overmould.

The pad on top is quite large to hold and has an almost-impossible-toturn speed wheel at the rear, due to it being rather recessed and smooth to the touch.

At the front is the on-off switch which, although having a grip surface, is still a little awkward and not rubber booted against dust - hopefully Hitachi have considered this in the design.

The perforated rubber sanding pad is 125mm wide with a hook and loop sheet fixing. The dust exhaust port at the rear is a very narrow slot with only the dustbag offered for collection, there being no extraction spout.

The dustbag is only a standard textile one which is very disappointing considering other manufacturers are starting to fit collectors with zero dust emission.

Hitachi supply one sheet of 120 grit finishing paper with a stearate coating.



#### Verdict

Working with the supplied abrasive to clean up my workbench, the sander proved to be very effective, with a good removal rate while leaving the surface nice and flat ready for a finer grit before refinishing.

Dust appeared all round the skirt of the sander, which suggests Hitachi has some work to do on extraction, although there was plenty deposited in the dustbag.

Compared to another similar machine we have in the workshop it did transmit a bit more vibration.

Overall, it does its job fine. If Hitachi improves the switches and fits a zero emissions dust bag or box, then the sander would gain top marks from me.

#### AT A GLANCE

- Compact
- Efficient sanding rate
- Quick abrasive attachment
- Trade brand

#### THE NUMBERS

- Model: SV13YA Random Orbital Sander
- Motor input: 230W
- No-load speeds: 7,000-12,000rpm
- Sanding pad size: 125mm
- Weight: 1.4kg
- Typical price: £93.54 inc. VAT

#### **PROS & CONS**

- ✓ Easy to use
- Quick change abrasives
- Faster than standard orbital
- Awkward switches
- M Dust emission

#### WHERE TO BUY

From www.hitachi-powertools.co.uk

#### **5 STAR RATING**

Value for money: ★★★ Performance: ★★★★ Build quality: ★★★★

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

# Hot Stuff

Prices are correct at time of printing and inclusive of 20% VAT. Photographs and information courtesy of the manufacturers

Take a look at the tools, gadgets and gizmos that we think you will enjoy using in your workshop

## **BOSCH IXO SET**

This is the original IXO set with Lithium-ion technology, including an angle screw adaptor and offset angle adaptor.

If you need to drive screws in corners and narrow gaps, with the angle screw adaptor, the IXO cordless screwdriver works in extremely tight spaces. The offset angle adaptor enables you to tighten every screw carefully - even in areas close to edges. Thanks to its lithium-ion technology the Bosch IXO set is always ready to use with no memory effect and no self-discharge.

Forward/reverse rotation and a forward/reverse indicator and charge level indicator in the form of an LED makes this set even more useful. Additionally, a spindle lock, powerlight and softgrip all enhance the tool. A battery charger is included, which is an ideal place to store the tool.



£69.95

**Contact: Bosch** Tel: 0844 736 0107

Website: www.bosch.co.uk

## **BOSCH** PMD 10 MULTI WIRE PIPE AND STUD DETECTOR

Take the danger out of drilling into walls where you don't know the location of pipes or wires.

This multi-functional detector instantly shows the exact location of metal structures, live electric wires and metal plumbing pipes.

A special focus function gives increased lateral accuracy. This makes it possible for you to locate metal and wooden objects, so that you can also detect studding you need to avoid, or screw into. Detection depths are as follows: ferrous metal up to 100mm, copper 80mm, electrical cables 50mm, and timber 25mm below the surface.

Supplied with a protective pouch and 9V battery and a two-year warranty.

## **ROCKLER** DOWELLING

IIG

Rockler's new Dowelling Jig makes it easier than ever to drill straightcentred holes for dowel joinery without having to use a drill press.

Available in three sizes - 6mm, 10mm, and 12mm - the dowelling jigs deliver joint

setups for hand drilling in just seconds.

£8.94\* **Contact: Rockler** Tel: (001) 800 279 4441 Website: www.rockler.com

The 5mm thick transparent acrylic faces eliminate the need for transferring multiple marks from the jig to stock, making it possible to line up the jig, clamp it to the stock, and start drilling.

The ability to drill accurate dowel holes is a key ingredient to making strong, simple joints. With a Rockler Dowelling Jig, woodworkers are able to create perfectly matched holes for panel glue-ups, substituting complicated mortise-and-tenon joints with easy dowel joints, and creating stable joints in tight spaces where traditional joinery might not fit.

\*All products from USA to UK are subject to shipping & taxes.



**MIRKA** 

CEROS 680CV

£344

Mirka has developed a compact electric random orbital sander, called Ceros, to provide all customers with access to a total sanding

solution. Its unique design means it offers superior versatility and performance in a compact package. The optimised ergonomics ensure it's comfortable to grip, while the low profile design, which is very lightweight, allows easy manoeuvrability and greater control.

The brushless motor is powerful enough to maintain a constant speed under load. It's also virtually silent in operation and cheap to run. It has few wearing components, so the need for maintenance is minimised, and its lifespan is long.

Contact: Mirka Tel: 01908 375 533

Website: www.mirka.co.uk

# **FEIN** HANDYMASTER ABS 18V IMPACT DRILL



Contact: Fein

Tel: 01327 308 730

Website: www.fein-uk.co.uk

£86

### **GIFKINS** MASTERS PACKAGE

This Gifkins Dovetail Jig is supplied with any three templates, plus cutters to suit. This package is recommended for the more serious woodworker, as it offers increased options. For dovetailing only, choose the A10, B10 & H10 templates. For small work only, choose the A10, H10 & F5 templates. Add two Bessey clamps and the clamp holders to this package for quick and easy clamping.

£567.08

Contact: Classic Hand Tools Tel: 01473 784 983

Website: www.classichandtools.com

# PREMIUM FRENCH POLISHING KIP

This premium kit contains a selection of shellac French polishes ranging from lighter white polish, special pale polish and button polishes, to the darker brown garnet polish and jet black polish. To make a French polishing rubber, pure cotton rags and cotton waste are included, along with a professional No.6 Zorino mop for brushing French polish. Also included are raw linseed oil, 0000 wire wool, grain filler, tack cloths, spirit wood dye, methylated spirits and 3M silicon carbide abrasive sheets.

\*Price includes free next working day delivery.

Contact: Rest Express Tel: 01285 831 668

Website: www.restexpress.co.uk



## ISSUE 64 WOODWORKING PLANS & PROJECTS 69

## TREND DIGITAL DEPTH GAUGE

Trend has launched a new Digital Depth Gauge to set router cutter or saw blade height. It can measure up to 80mm with an accuracy of +/- 0.1mm and is operated by a lithium battery, which will automatically shut off after five minutes.

The Digital Depth Gauge allows horizontal or vertical measurement and includes a removable pin to measure a hole depth up to 50.8mm. This pin can also be stored on the arm of the Digital Depth Gauge, in push fit lugs.

The gauge is manufactured from injection moulded plastic and there are magnets in the feet to aid self-standing for setting router cutter depths on steel surfaced router tables.

Contact: Trend Tel: 01923 249 911

Website: www.trend-uk.com



www.woodworkersinstitute.com

# **MAKITA** THREE TIER POWER TOOL ACCESSORY SET RANGE

From E26.40

Make tool three tiers population in the second secon

Contact: Makita Tel: 01908 211 678

Website: www.makitauk.com

Makita has designed a new range of useful power tool accessory sets and structured the range at three levels of user experience. Within those three tiers is a wide variety of the most useful and popular accessories.

Specific attention has been taken to provide industry sizes for UK professionals and duplications of the most popular dimensions have been provided in some of the sets. Each contains a balanced selection of sockets, screwdriver and drill bits while high-end kits incorporate tape measures and spirit levels that ensure a professional has everything they may need for the job.

This set is also available in 70 and 40 piece sets.

# **DUST RIGHT** MULTI-PORT QUICK RELEASE STARTER KIT 68

The new Dust Right Multi-Port Quick Release Starter Kit creates on-demand dust collection for any workshop tool with a 63mm or 100mm dust port. For the many owners of small professional workshops who lack adequate dust collection with the suction power to handle multiple tools, this product is an ideal solution.

With tool ports connected to any four shop tools, and the Dust Right Handle connected to a designated dust collection hose, woodworkers have the convenience and efficiency of moving dust collection from one tool to the next, quickly and easily throughout any workshop.

\*All products from USA to UK are subject to shipping & taxes.

Excalibur

£449.95

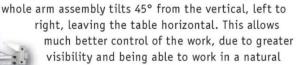


Contact: Rockler Tel: (001) 800 279 4441 Website: www.rockler.com

## **EXCALIBUR** EX-16 SCROLLSAW

This 405mm scrollsaw is the smallest of a range with some features not found on any other machine. Constructed mainly from plate steel, including a 7mm heavy gauge steel table with an epoxy painted surface, two unique features make this machine stand out from any other. Firstly, the blade actuating arms are very short, driven by a lever and rod mechanism. This gives very high control of

the blade plus exceptionally low vibration. Secondly, the



position. Blade changing is easy and tool free, with two hand clamps and a quick release lever. This is a serious machine for craft or joinery work.

Contact: BriMarc Tel: 0300 100 1008

Website: www.brimarc.com

## **BOOK REVIEWS**

The Missing Shop Manuals are a set of 10 books, each featuring a particular tool or tool type, providing you with all the information you need to get the most from your tools.

The series features books on the shaper, bench planes, circular saws and jigsaws, drills and presses, glue and clamps, the table saw, the band saw, the lathe, the router and last, but by no means least, the jointer.

Some of the books include a DVD, which guides the viewer through basic information and safety procedures as well as all the tips and techniques needed to use each tool to its utmost potential. Each book is written to appeal to both novices and seasoned woodworkers and comes with the chance for the reader to receive a pattern of their choice by post.

Although most of the books are under 100 pages, they are packed full of colour photos and diagrams to assist the reader in their work.

The Missing Shop Manual range is a handy set to have about the workshop or the home and will not fail to be of use to woodworkers.

They may even wish that these manuals had come with their tools in the first place.

#### **Band Saw**

by John Kelsey ISBN 978-1-5652-3492-5 Price £9.99



#### **Bench Planes**

by Ernie Conover ISBN 978-1-5652-3538-0 Price £14.99 (DVD included)



#### Shaper

by John Kelsey ISBN 978-1-5652-3494-9 Price £6.99



The above books can be ordered through GMC Publications

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## Readers' forum The website write stuff

A place for readers to share letters, tips, advice, questions and photos of the latest projects in the WPP community

## Bottle stopper, by Mark Lynham

Hi, a bottle stopper here in some lovely wood raided from Granny's woodshed – think she's due another visit very soon!

Anyone any ideas what it is please? It's very close grained if that helps.



A Hello Mark,
Could be spalted beech but not entirely sure.

Ivan Loughton, West Lothian

A Hello Mark,
Turned a bowl the other week out of spalted apple, it looks exactly like this.

Neil Lawton, York



## Art Deco furniture, by Ivan Chonov, France

Though I'm a big fan of the style and I make furniture for a living, I never tried to make Art Deco style furniture, until now. I was faced with all kind of unusual problems: I had to use some exotic tools (for a modern workshop, that is) and messed some things up big-time, e.g. the dovetails.



## Scrollsaw puppets, by Tucker Thompson

I have got the bug for this woodworking thing thanks to WPP. Just to show that people do make the items you show, I have attached my first attempt at scrollsaw work. I learnt a great deal whilst trying to make these toys.

Blades differ in width and depth; the blade that came with my scrollsaw was quite big, hence trying to steer the blade round the outline was like trying to take the QE2 on a canoe course. I now need to find some finer blades that will turn easier. My saw utilises pin-end blades but I have found out that there is a greater variety of pin-less blades.

I chose to connect the arms as well as the legs to make them move, which works well.

A great magazine; I just love it when it drops through the letterbox.



## Treebowl, by Richard Kennedy, Kilbury

Phew! Finally, after much disruption, it is done! Started before the Harrogate Woodworking show – this lump of lime claimed both my fine piercing tool and my rotary hand piece leaving me with no option but to go to Harrogate and buy new ones. Once I had got over the shock of having to buy new equipment, the issues really started as I explored my very limited skills in the pyrography department, but enough rambling on, here it is; I hope you like it!

## **DOVETAIL JIGS**



Does anyone have any experience with dovetail jigs? On Saturday I decided to make a potting bench as a present for Mother's Day, so I thought I would put a drawer in with half-blind dovetails. I thought the joints were a bit tight so I followed the bit about raising or lowering the cutter and it had no effect whatsoever, then I realised that when making half-blind dovetails you are making the pins and tails at the same time, so any adjustment is repeated on both parts.

Any ideas?

Rick Hazelwood, Surrey

I have a small Trend jig that I sometimes use. One tip I can give, however, is to stand the pieces on the bench in the place that they will fit together later and draw an arrow pointing to the top of each piece. This then directs you to which side of the jig to put it. Hope this helps.

Andrew Shaw, Preston, Lancashire

A I had a Leigh jig but considered the dovetails a little industrial so I sold it. I've been using a WoodRat for a few years and find it excellent, once you get your head around the concept.

Just a few tips to make life easy: www.rockler.com sell nice narrow 8° carbide dovetail bits. Use 8mm shanks if possible for rigidity.

Use spiral cutters for straight cuts and smoothness. I've posted before about an easy way to make half-blind dovetails by ripping off a 3-4mm piece from the front board and re-gluing, giving the impression of half-blind. Hope that makes sense.

Brian Corrigan, Southern Ireland



## Pear teapot by Michael Gibson, Hoschton GA, USA

Here's another teapot I made out of pear.
I tried to replicate a porcelain effect by bleaching but it did not reach the white I was looking for.



### Oak table by Susie Tempest, Wensleydale

I thought I would show what I've been up to lately and what it is that has taken me away from my lathe. We needed a kitchen table and had some oak planking – this is the result.



## Segmented turning by Billy Wyko, USA

I recently got a new 15V bowl gouge from Glaser Hitec. Of course, I had to take it for a test drive. What I realised was I could turn far thinner than ever before. The handle has lead shot inside so it dramatically reduces harmonics. I can't say enough good things about this tool; it really let me take my

work to another level.

Anyway, the vessel I turned using it has 625 individual pieces. The woods used are shedua, bocote, maple and Gabon ebony.



## Like this?

Find advice, tips and gallery images from fellow woodworkers on the Woodworkers Institute forums: www.woodworkersinstitute.com



Send in your letters, tips, advice, digital photos and questions relating to woodworking to: WPP Readers' Forums, 86 High St, Lewes, East Sussex. BN7 1XN

Alternatively, email the Editor, Matt Long: mattl@thegmcgroup.com

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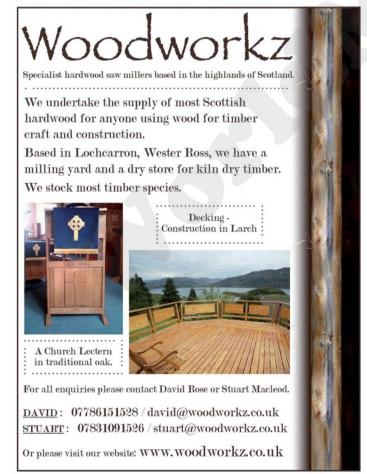


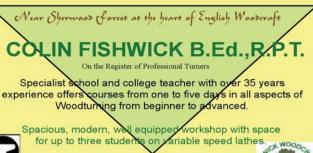
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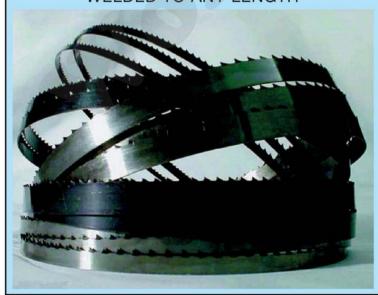


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## Towel

Here's a simple design to keep your towels neat and tidy

## WHAT YOU NEED

- · 25 x 25mm PAR softwood
- · 60 x 25mm PAR softwood offcuts
- · lomm dowels
- · Waterproof PVA glue
- · Dowelling jig
- · Cordless drill · Waterproof varnish
- · Chopsaw or handsaw

part from the feet on this design, everything is made from 25mm square PAR timber.

Cut all the components neat and square - a chopsaw will make very light work of this. Note that all the long horizontal components are identical in length so use a length stop on the saw so they are all exactly the same.

For neatness, rather than screwing everything together, it would be far nicer being dowelled. You can either use a

proper dowel jig or make one up in hardwood that locates accurately against these components.

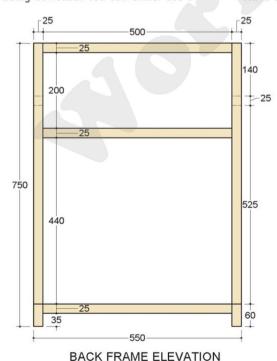
You will need a brad point drill the same size as the dowels - which need to be 10mm diameter.

Mark up the uprights neatly to avoid much sanding off of marks, and offer up the jig and make the stopped dowel holes using a depth collar on the drill or drill bit.

Now repeat on the ends of all components ready for assembly. Clamp the front and back frames as sub assemblies using waterproof glue and leave to dry on a flat surface. Once dry, glue the cross pieces, the feet and the base rails all at the same time.

The feet are simply cut out on the chopsaw, and then the bandsaw cuts the curves - which are then sanded on a bobbin sander. Once it is set, lightly break all the edges with abrasive paper and the job is done - apart from using a waterproof varnish to give the rail a nice finish.





FRONT FRAME ELEVATION Scale 1 to 10

325

> SIDE ELEVATION Scale 1 to 10

Scale 1 to 10

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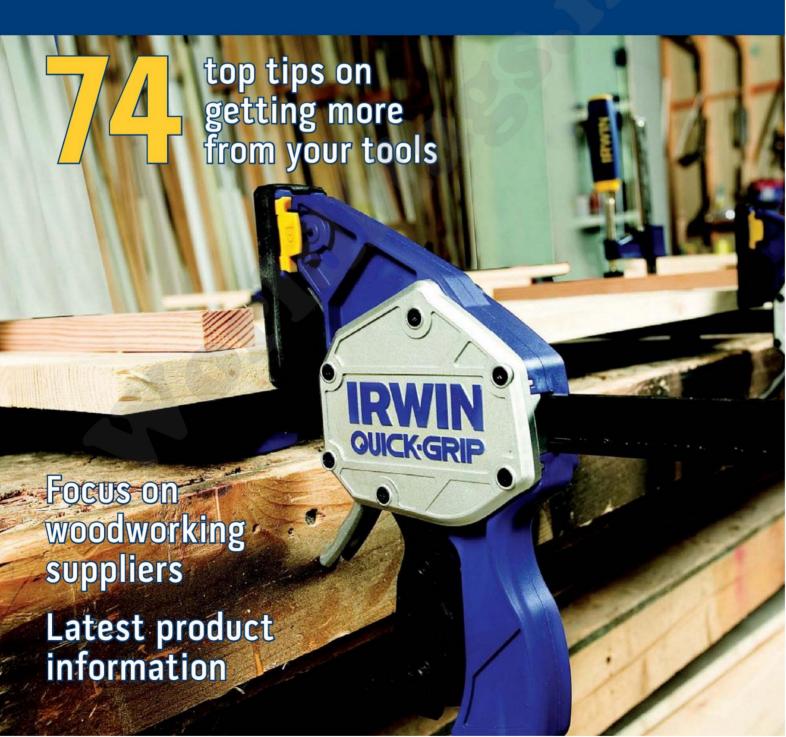
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## Welcome to The Essential Workshop Guide

## Meet the contributors



**Anthony Bailey** Technical Editor of Woodworking, Plans & Projects, plus chief photographer on all GMC's titles



Mark Baker Editor of Woodturning and Woodcarving and Woodworking Group Editor of GMC's four wood titles



**Derek Jones** Editor of Furniture & Cabinetmaking



Matt Long Editor of Woodworking Plans & Projects

## Introduction

Welcome to our all new guide to woodworking, The Essential Workshop Guide, brought to you by your favourite woodworking magazines - Furniture & Cabinetmaking, Woodcarving, Woodturning and Woodworking Plans & Projects.

We've brought together our two popular guides, The Workshop Guide and The Woodworker's Directory, to make a handy guide to woodworking. The Essential Workshop Guide aims to take you through some of the best tools on the market and how to make the most of them. Our skilled editors will share their step-by-step tips with you on a range of essential tools, to give you the inside track. So whatever you're looking for, be it a router or a plane, we're here to help you decide what's best for you.

At the back you'll find a comprehensive directory of suppliers in every area of woodworking from power tools to courses. Keep it in the workshop with you so that everything you need is right at your fingertips.

We hope you find this useful and it helps you to really get the best out of your craft. Happy woodworking!

GMC woodworking magazines' team

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# Getting the most from your tools

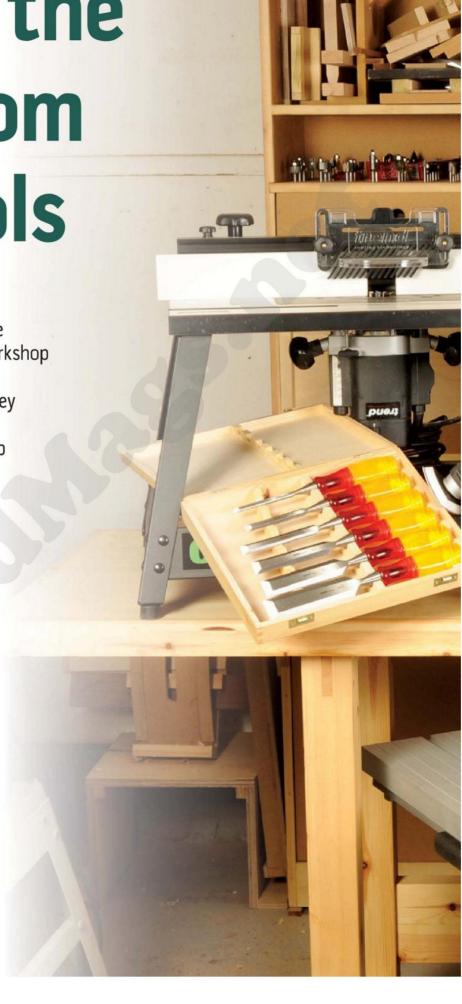
This year we've brought together the Woodworker's Directory and The Workshop Guide to create one indispensable guide to woodworking. Anthony Bailey introduces what we hope will be an invaluable resource in your workshop

## **USING TOOLS WISELY**

In this guide we thought we'd put forward some tips and tricks that anyone would find useful when using some of the typical tools you'll find in the workshop. Some are fairly obvious, but not perhaps to everyone, while others are hopefully new to you. Simply using a machine or handtool straight from the box without any great thought is seldom satisfactory, so we hope our advice will help you get the best from your kit.

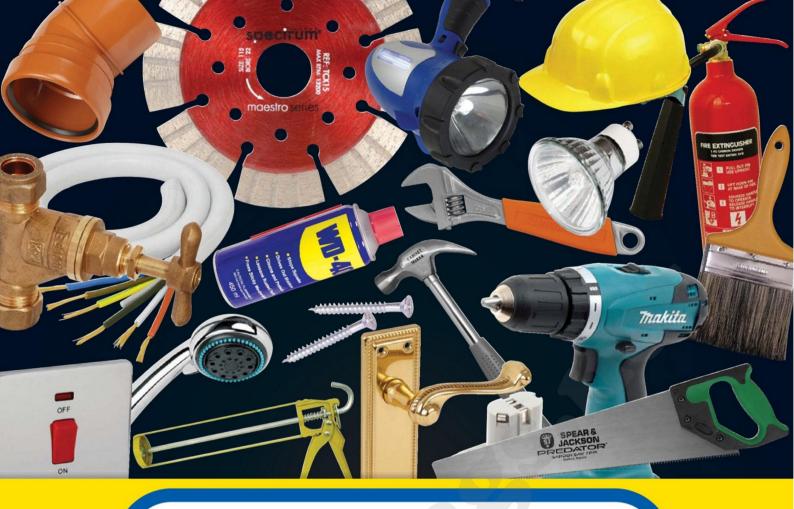
### **OUR CHOICES**

We have taken items from across the spectrum of woodworking tools, many are power tools or machines reflecting modern practice, while also including essential handtools that none of us can do without. Cost, as ever, is a consideration but if you need to convert or resize timber then a tablesaw is pretty essential. No workshop can be without a means of doing light metalwork so a combination chopsaw is ideal. The advent of modern quick clamps has transformed the laborious operation of clamping at glue-up time. Cutting a dovetail or chopping a mortise needs a set of good, sharp chisels and practised hand and eye co-ordination, an essential learnt skill. So we hope there's something for everyone in this. The Essential Guide 2011.



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## Top clamping tips

Matt Long gives us his top tips for using clamps



TIP 1 Sounds obvious, but if you're clamping up any kind of frame or carcass, it's important you have a totally flat reference point to rest your clamps on. It's so easy to think you've clamped up properly, only to find a frame is out of wind. A good way to check your clamping is to eye across the flat of a frame, and you'll soon see if it's flat.



Measure diagonals to check for square

TIP 2 After you've clamped up, check for squareness. Even if you've clamped a frame of carcass on a flat surface, the clamps may have pulled the frame out of square. The simplest way to do this is to measure across any diagonals, as here. If the diagonal sizes are equal, then you've definitely got a square frame, if all your other dimensions are accurate.

TIP 3 Keep clamp pads clean. There's nothing worse than being in the middle of assembling and clamping, having applied your glue, and finding your clamps have dirty jaws, which will mar the workpiece. After every job, give your clamps a good wipe down to remove any glue.

TIP 4 Pushing and pulling. Don't forget many clamps these days can be used as spreaders as well. This is particularly useful if doing repairs on old pieces of furniture for example, where you need to disassemble a piece. Also, if you've done a dry fit and the joint is a bit tight and won't come apart, rather than using a percussion instrument to separate pieces, you'll find the gentle pressure of a clamp works best.

TIP 5 You can never have enough clamps. It's an old saying but it's true. Keep as many as your workshop will allow.

TIP 6 Double up your clamps. Don't forget most sash clamps or quick clamps give the option to bolt the ends together to double the length of the clamping operations you can manage.



Stow your clamps so they're easy to grab

TIP 7 Store your clamps in an easy to get at place. It's no good having all the clamps you need, if you don't store them in an easy to get at manner. Whether it be a clamp rack, or just using available beams in your workshop, it will make your life a lot easier if you manage to keep everything orderly.



The key is keeping the workpiece steady

TIP 8 Don't forget how useful hand clamps are for holding the workpiece steady when using handtools, too. If you clamp your work to your bench, keeping it rock steady this way makes it much easier and safer to use your hand tools, for instance when chiselling dovetails, or tenons. You may think it will save time to just have a go with no clamping, but in the long run, you'll produce better work, faster.



Clamps also help with machining

TIP 9 Use on machines to hold sacrificial pieces of timber. This really is an extension of step 8. So, always keep a few clamps close to your pillar drills, or bandsaw, or router table. You'll be surprised how often you need an extra pair of hands just to hold something stable while performing a machining operation.

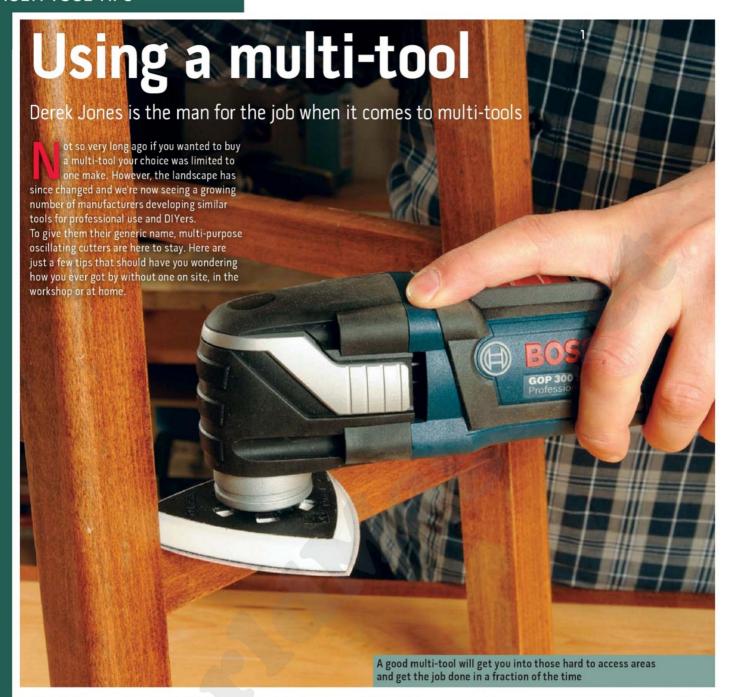
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For this we have used Irwin Quick-Grip XP600 clamps:

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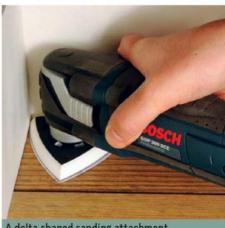
Changing tools can be as easy as flicking a lever

TIP 1 Currently tools and accessories for the multi-tool are universal in that the single design fits all machines. The locking mechanism is not universal however. On this model from Bosch an SDS fitting is activated by a sprung lever.



to the versatile nature of the tool

TIP 2 The delta shaped foam sanding pad is perfect for cleaning up awkward shapes. The hook and loop sheets are generally available in varying grits. The sheets can be rotated around the pad to maximise the life of the abrasive.



A delta shaped sanding attachment will get you right into corners

TIP 3 You don't always want to refinish the skirting when you're polishing the floor. Industrial edge sanders still struggle to get right into the corner of the room, but a multi-tool affords great control right up to the paintwork.

## **MULTI-TOOL TIPS**



TIP 4 Skirting boards and doors can all be trimmed in situ with a multi-tool. With an appropriate spacer you can create just the right gap to take floor tiles, carpets or timber flooring without dismantling a thing.



The disk blades make it easy to plunge cut and follow a straight line freehand



Cut Perspex with your multi-tool

TIP 7 With the right blade it's possible to cut whole sections out of sheet material, or even rip along a straight line with reasonable accuracy freehand. With a little practice you can easily create neat corners and no longer have to rely on a pilot hole to insert a saw blade.

TIP 10 As with timber based sheet material, having the right blade will enable you to cut and shape Perspex and acrylic. A slower rate of oscillation will be required so be sure to choose a machine with this function.



With the right tool ceramics can be trimmed with your multi-tool

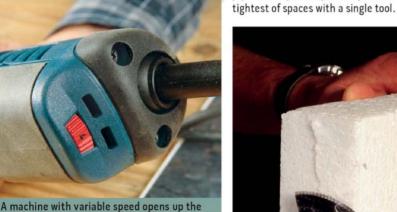
A narrow plunge cut blade will enable you to cut discrete openings and mortises

TIP 11 Cutting ceramic tiles is a skill in its own right but you can still be left with a jagged edge. A multi-tool will allow you to finish edges smoothly right up to the line to get a neat job every time.



An oscillating knife tool can help lift material that's been stuck down

TIP 5 Perhaps the greatest benefit to owning a multi-tool is its size. If you've ever struggled TIP 8 For fitting furniture whether it be kitchens, bathrooms or shops, a multi-tool will to lift floor tiles in a confined space one of these come in handy no matter what. Create cable or will get the job done with a minimum of fuss. pipe access precisely where you need it in the



range of tools you can use with your multi-tool

TIP 6 A key feature on some multi-tools is a variable speed selector. For example Perspex and acrylics both benefit from being manipulated at a slower speed. Some sanding applications will also require you to work at a reduced speed to prevent over-heating the surface.



Leave behind a clean edge and not a mountain of white particles when cutting polystyrene

TIP 9 Plasterboard, polystyrene and insulation boards can all be cut with a saw but the result is often messy and a chore to clean up. With a multi-tool you can trim your sheet material to be a piston fit and leave almost no trace.



The DIYers favourite weekend pastime

TIP 12 Removing grout from between tiles can be a fiddly job at the best of times. A good multitool with its fine rate of oscillation will allow you to work around sanitary ware in tight spaces without too much risk of chipping a tile.

## **MANUFACTURER INFO**

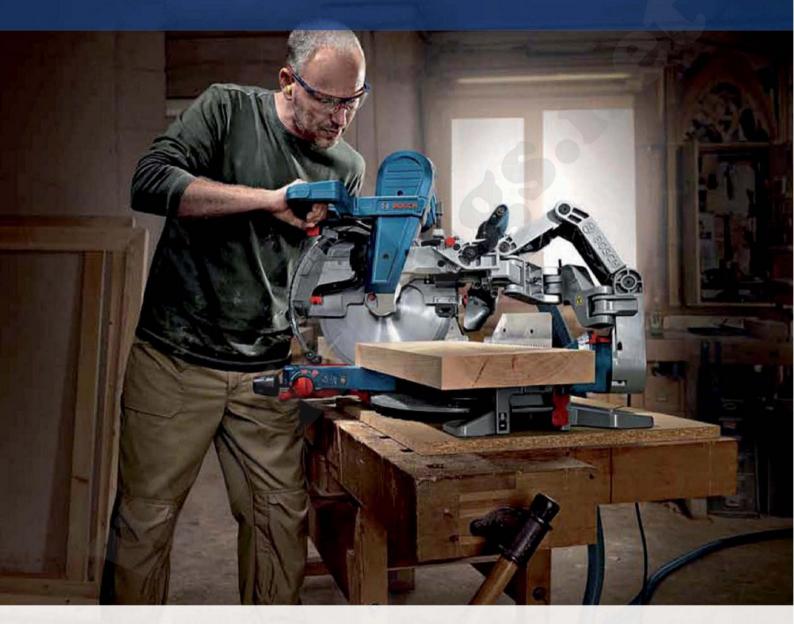
For this we used a GOP 300 SCE Professional Multi-Cutter from Bosch:

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## Get the most from your chisels

Mark Baker talks about what to look for and gives some top tips on using your chisels to the best advantage

hoosing a chisel is no easy task. There are lots of things to consider, such as what is it to be used for? Will it be used for general work around the home, be used for fine cabinetmaking or must it withstand heavy-duty use for site work or similar situations? Most people find that they require general-purpose chisels that are capable of being used in a variety of situations. Here are a few pointers to help you.

TIP 3 Pick a chisel that has a strong bolster—the bit that meets the handle and blends into the flat blade section—and has enough rigidity in the blade and a good split-proof handle design that's comfortable to hold and able to withstand mallet blows. A bevel-edged chisel of a good quality and design can be used for a variety of jobs without you having to buy specialist chisels—see main pic.



Keep the back of the chisel absolutely flat on the stone when flattening off the back

Depending on the type of hammer you can use the side of the head of the hammer to give a larger striking area

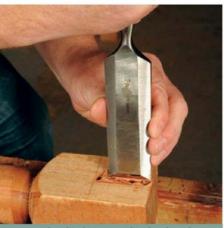
TIP 1 To ensure you get a good edge on your chisel it's wise to flatten the back of the chisel on a fine sharpening stone. This will remove any grinding marks and ensure that when the chisel is sharpened you get the best possible edge.

TIP 4 Many people don't have a mallet. If you don't, you can use the side of a hammer head instead to give a wider striking area — check the type of hammer you use to make sure this is OK. Try not to use the head of the hammer as this is a small striking area and hurts if you miss and hit your hand.



A secondary bevel angel of 30° for the cutting edge is capable of being used on a wide variety of woods

TIP 2 When sharpening your chisels it's advisable to create a secondary bevel for the cutting edge. The primary ground bevel is usually somewhere about 25° and if sharpened at this angle the sharp edge would not be strong enough to cope with cutting both hardwood and softwood. Instead, sharpen with a 30° micro bevel and you will have a far stronger cutting edge to cope with various situations.



Use as wide a blade as possible for the job at hand

TIP 5 When cutting use as wide a blade as possible to ensure nice straight line cuts and a straighter cut face especially when cleaning up tenons and so on



Cut in from both ends when paring off work

TIP 6 When paring off try to cut in from both ends of the work to minimise any grain split from running past the end. Make the initial cuts with the bevel down and then lay the blade flat on the work to make the final cuts.

TIP 7 When cutting dovetails and other tight work, the blade of the chisel tapers towards the front end, try angling the blade too so you only cut on the corner of the gouge to get in those very tight corners and edges.

TIP 8 Always use edge protectors on chisels to stop any damage occurring to edge. They also prevent accidental damage to your hand if you rummage around in the tool box for your tools.



Sacrificial boards can save damaging your workbench

TIP 9 When paring through wood try not to pare all the way through the thickness or you risk splintering off the wood on the other side. Work from both sides if possible. It is also advisable to have a sacrificial board underneath the work just as a precaution should you slip with the chisel.

TIP 10 It is worth wiping your tools over with cloth which has been lightly sprayed with WD 40 or similar to prevent rust after a day of use working outside or when using them in contact with wet timber. This procedure also helps minimise rust happening in your workshop.

## **MANUFACTURER INFO**

For this we have used Marples M373 splitproof bevel edge chisel.

T: 01543 447 000

W: www.irwin.co.uk

E: uksales@irwin.co.uk



Accurate cut width setting using a gauge

TIP 2 Measuring cutter height or projection from the table fence is often a matter of working by eye or trial cuts alone. A purposemade device such as this one will give spot-on accuracy very easily indeed, taking the guesswork out of cutter set-up.

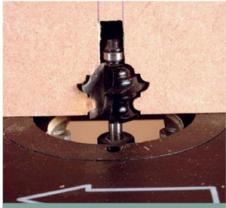
normally come with a mitre fence, which is handy for scribing and angled cuts, but it requires the straight fence to be parallel to the mitre fence groove. If you make up your own push block exactly square and with an upstand at the front you can still do perpendicular scribing cuts without worrying about the angle of the straight fence.





A fine height adjuster is essential for table working

TIP 4 Don't attempt router table work without some kind of fine height adjuster. Check to see if your machine has an in-built adjuster or is capable of taking an add-on device. You'll find making exact adjustments impossible otherwise.



The breakthrough fence needs to be a close fit to the cutter

TIP 5 To prevent wood tearing out when making difficult cuts, especially with complicated moulding profiles, you must use a breakthrough fence. This is just a thin board of MDF clamped or screwed to the router table's own fence facings. To use, pull the fence forward, clear of the cutter, switch on and push the fence back until the correct amount of cutter breaks through, then switch off and lock the fence.



When using a support strip, ensure pressure is applied to the workpiece side

TIP 6 When machining away part of a workpiece ensure you have proper out-feed support. In this case a fillet of wood matching the area machined out is fixed in place to give the support.



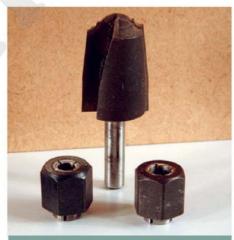
You can use a stop block on the in-feed or outfeed fences or both

TIP 7 If you need to make stopped cuts, use a block clamped to the fence which should have a nicked-off bottom corner to prevent 'packing' of chippings that would stop the workpiece from butting up to the block properly.



The stock to be fed through a 'tunnel' must be consistent in size

TIP 8 Building a 'tunnel' will allow you to safely machine small sections without vibration or tearing out of the wood grain. Make sure the jig encloses the prepared workpieces closely and use one workpiece to push the next one through.



Most small routers are supplied with both <sup>1</sup>/<sub>4</sub>in and 8mm collets

TIP 9 Having a small router doesn't preclude you from doing larger operations such as panel raising, as long as you have an 8mm collet available to fit your machine. Vertical panel raisers are available on 8mm shank. Just ensure you use a closely fitting breakthrough fence to prevent breakout across the grain.



Slotting is easy after fence marks are made

TIP 10 Biscuit jointing is possible on the router table using a biscuit cutter or a 4mm thick groover. Mark the biscuit slot required on the workpiece, which should be slightly longer than the biscuit and then mark the start and stop positions on the fence. Do a trial cut first, swinging the front end of the workpiece in until it presses against the fence. Make the cut and swing it away again.



Pre-scoring - a trick of the trade

TIP 11 Pre-scoring is a trick professionals use to avoid tearing around a deep slot and you can do the same thing too. Just set the cutter so it projects no more than 2mm from the fence face and do the first cut before making the full depth cut and avoid nasty ragged edges.

TIP 12 The router table insert needs to be flush with the table surface or at least be fractionally lower at the in-feed side to avoid catching as you push the workpiece through. Some inserts like this one allow minute adjustment, otherwise insert veneer slips to have the same effect.

## **MANUFACTURER INFO**

For this we have used a Trend router table available from:

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W: www.trend-uk.com

E: sales@trendm.co.uk



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## The essential bevel up smoother

## MANUFACTURER INFO

For this we have used a Veritas bevel up smoother available from:

T: 0300 100 1008

W: www.brimarc.com

E: email@brimarc.com

Derek Jones explains why a bevel up smoother is an essential piece of kit



TIP 4 A 38° bevel blade will yield better results on woods of varying grain.

TIP 5 A 50° bevel blade can be used to smooth woods with reversing grain.

TIP 6 Cutting end grain requires as much as three times the amount of force compared with planing parallel to the grain.

TIP 7 Skewing the path of the plane has the same effect as lowering the angle of the blade. For example a 38° bevel blade skewed at 45° across the path of travel has the same effect as using a 28° bevel blade.

TIP 2 Generally you'll want the smallest mouth opening while still allowing the shavings to escape. The reason being that the sole in front of the blade supports the wood and prevents a shaving from propagating below the surface and resulting in breakout.



TIP 3 A 25° bevel blade is ideal for fine trimming work on end grain and some general smoothing.





A second pair of screws act as guides to control

lateral movement of the blade.

he key to assembling the right tool collection is versatility. It's a little known

fact that unlike clamps, which you can never have too many of, you don't need to own

a multitude of planes to have every base covered.

Further more, it's a well kept secret that a bevel

will turn this bench top beauty into the ultimate

up smoother is an essential piece of kit. A selection of blades ground to different angles

multi-tool.

end grain.

Set the side screws to gently kiss the blade and not clamp it tight





End grain is not a problem. Just protect the front edge

TIP 8 Support the front edge of your workpiece with a scrap of wood to prevent splitting when planing end grain.

TIP 9 Use your smoother on a shooting board to trim small components.



A bevel up smoother is quite at home on a



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## Tackling your table saw

Anthony Bailey's got it covered when it comes to tips for the table saw



TIP 1 When cutting solid timber such as this reclaimed oak painted board, move the fence forward so the end is level with the leading edge of the sawblade. This way any tension released in the wood will allow it to spring sideways without becoming trapped by the fence.



TIP 2 To cut manmade veneered board the fence is returned to the rear position to help keep the cut parallel with the fence. Drop the blade down so the teeth are halfway through the board surface to improve the cut and reduce

breakout. (Guard raised for clarity).



You need at least two different blade types available

TIP 3 Choose the correct blade for the job. The installed blade is general purpose for rip and crosscutting, while the one lying down is for ripping only and especially for deep cuts. If you cut a lot of faced, manmade board it's worth buying a triple chip tooth blade that minimises breakout.



Make any adjustments to blade or riving knife with power disconnected

TIP 4 After blade changing check the riving knife position so there's a gap between it and the blade. Rotate the blade by hand with the power disconnected, just to check it doesn't catch on the riving knife.



The table insert must be flush or angle checking will not be accurate

TIP 5 Check the blade is perpendicular to the table, in this case using a clear plastic square supplied with the sawtable. Often the tilt arbour and rise and fall are co-located so it's easy for the blade to tilt unintentionally.

TIP 6 If you cut a lot of small pieces these can become lodged in the gap between the insert plate, and the blade can cause the saw to stall and ruin your workpiece. You can add a sub-bed by setting the fence distance then pushing a piece of MDF or ply on to the blade and clamping it in place so it covers the table.

### **MANUFACTURER INFO**

For this we have used a Makita table saw available from:

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Release to lock plunge mechanism

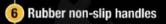


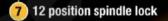
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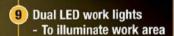
12 position spindle lock







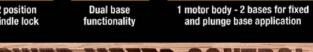
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## Mastering your router

Matt Long shares his expertise on mastering a router



Be smart and make the right choice when it comes to safety

TIP 1 Always wear eye and ear protection. Safety is, as always, your first consideration. Your eyes are constantly vulnerable to flying woodchips, and the router is particularly noisy. From a safety point of view, always make sure you have the workpiece securely clamped, or resting on a non-slip surface, such as a router mat, or bench cookies.



Pulling, rather than pushing, the router towards you will offer you more control

TIP 2 Pull the router towards you. An oftenoverlooked point, but it's much easier to control the router if you pull it towards you. It's just the mechanics of your body – you have more control than if pushing away from you.

TIP 3 Don't climb cut... always cut against the cutter rotation. This keeps the router against the workpiece, stops it flying around the place, and stops the workpiece being ejected by the cutter.



The key to success here is control surfaces

TIP 4 Use fences. The router comes with a few different ways of controlling it, from fences to guide bushes. Use them whenever possible. The secret to accurate routing is using control surfaces to work off.

TIP 5 As well as using fences, it makes sense to make jigs for using your router with as well. From doing inlay work, to cutting rebates, to fitting hinges, there isn't a jig and router combination that won't do a brilliant job for you. It's the same idea as with a fence, that you constrain the movement of the router as much as possible, so that it can't wander while you're cutting. For a detailed look at router jigs look in the pages of Woodworking Plans & Projects magazine, for Anthony Bailey's router class, which has an in-depth look at more jigs than you can shake a stick at.

TIP 6 Use extraction. Using extraction on the router is not always the easiest thing. The extraction tube gets in the way, and because of the nature of freehand routing, it's hardly efficient. It's of vital importance, however. Routing produces copious amounts of dust, because you're generally removing a lot of stock, and it tends to spray everywhere. This is the obvious stuff, but it should also be noted that extraction can help improve your work, as the more wood dust is taken away from the job, the less the cutter is likely to get bogged down, and the easier it is to see what you're doing.

TIP 7 It's often said, but is advice not always followed... don't overstrain the cutter. By doing so, you can cause all sorts of damage to the workpiece: you get burning, chattering, and excessive breakout if you push the router too hard. You can also shorten the life of your cutter, and put strain on the motor, which won't help the router's longevity.

TIP 8 Use all of the machine's features... an obvious point, maybe. But if, like on this DeWalt, you have a very useful and accurate plunge gauge, why not make the most of it.



You can save yourself a lot of burnt timber, and a red-face, by making sure you use the right cutter at the right time

TIP 9 Choose the right cutter for the right job. Again, it might seem like obvious advice, but there are subtle differences between cutters. This one here, for example, is a pure straight cutter. It's fine for drop on and drop off cuts on the edge of timber, but never use this variety of straight cutter to plunge with, as it doesn't have blades across the bottom.

### **MANUFACTURER INFO**

For this we have used the DeWalt D26204 combination router available from:

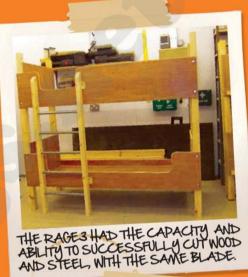
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## The popular multi-purpose compound mitre saw

Matt Long talks all things chopsaw

hopsaws that can take wood and metal cutting blades are getting more and more popular these days, so here are a few tips for using one. These tips also apply to mitre saws.



Achieving stability is crucial before use

TIP 1 Before using one of these saws, make sure you fix it down properly, so that it's stable before use. I screwed this saw down to the workbench. There are many different ways of achieving this. There are stands you can buy that will do the same job. Whichever method you use to fix your saw down, you need to be creating a stable situation for operation.

TIP 2 Another great tip is to never trust that the factory settings are accurate straight out of the box. Always check all angles of cutting; that fences and so on are working properly, and that all moving parts are tightened correctly. Manufacturers endeavour to set their kit up properly, as a rule, but things always shift about during transit and storage.



Make sure you regularly check blade tightness

TIP 3 On any saw, it's important to check the blade tightness regularly. In fact, if there are long periods between using your saw, it's a good idea to check this every time you come to use the equipment. It might seem like a little bit of overkill, but better to take extra care than end up with a damaged workpiece, or worse.



Check your blade every time you use it

TIP 4 Always use the correct blade for the job. This may seem a trifle obvious, but it's of obvious importance. For instance, it's very easy with a machine you've used to cut wood and metal, to one day fit a wood only blade, and then forget about it. You go back to the machine a few weeks later, forget what you've done, and try and cut metal. Not recommended. It's always good practice to check your blade every time you use your kit. It might be wise to do this every time you do step 3.

TIP 5 Safety wear is of the highest priority with these machines. If you're using the saw to cut metal, then hot sparks will be flying around. If cutting metal, then it's best to wear eye protection that wraps around the face. I know of a case where a fragment of hot metal found it's way into the user's eye even though they were wearing safety glasses. Also, wear ear protection, and never have loose clothing flapping around.

TIP 6 Use proper extraction, as a bag doesn't catch all the wood and metal dust. The extra dust removal power of attaching an extractor to your machine will make an awful lot of difference. Also, if cutting wood and metal one after the other, beware of fire hazard. For instance, if you're using just a bag, and it has wood dust in it, then you add hot metal sparks, the whole lot can go up in smoke. The same goes with an extractor.



Make sure you clamp properly

TIP 7 Always clamp your workpiece properly. When cutting wood it's always a good idea, but with large sections, you can get away with holding the workpiece by hand, with care. However, when cutting metal, always always always clamp the workpiece.

TIP 8 Do test cuts to check mitre angles. Not only is it a good idea to check factory settings, but also to make a test cut before each new job. Odd things happen, machines get knocked, so if you don't want to waste a piece of good material, always check with a test cut.

TIP 9 When cutting metal, take your time and respect the material. If you're not used to working with metal, it's a different cutting technique to wood. Just take it easy, don't overstress anything, and if the workpiece is clamped down, you'll cut through it nice and safely.

### **MANUFACTURER INFO**

For this we have used an Evolution multipurpose compound mitre saw available from: T: 0114 251 1022

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## Choosing and using a carving clamp

Mark Baker talks about what to look for and gives some top tips on using carving clamps to the best advantage



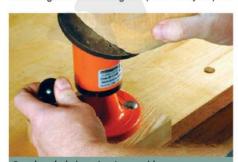
Fit a false base on your clamp to allow you to use it in a variety of positions

TIP 1 It's important that you have a clamp that can be moved to suit your working position, and also one that can be held securely in place in a variety of ways. Most clamps have some holes in the base to enable you to lock them in place, but it's better to fit a false base which can be fitted and locked in a variety of positions to suit what you're working on.



A standard long-reach bolt can help with fixing the clamp in place

TIP 2 Having a different fixing option can save you time and also a lot of problems with over stretching and so on. A single fix point is very helpful.



One-handed clamping is a real boon and helps no end

TIP 3 When choosing a clamp, pick one that allows you single-handed operation when clamping the moveable table/work in place. This leaves the other hand free to move the work to the correct position.

**TIP 4** The other thing to look at is having a lever clamp that requires only minimal pressure to lock everything in place.



Waste wood blocks give more fixing options for tricky pieces of work

TIP 5 It's advisable to have a clamp that has a fixing plate on it which is drilled with various screw positions. If the work is narrow you may find that the fixing positions in the plate don't fall right to lock your work in place securely. If this happens you can screw a wide waste piece of wood on the work and screw the waste wood to the fixing plate. This gives a firmer fixing for your work.



Make sure your clamp is substantial enough to be used with heavy-duty shaping cuts

TIP 6 When choosing a clamp make sure it's substantial enough to be able to be used in conjunction with mallet blows when you need to quickly shape work with heavy cuts.

TIP 7 Make sure that you're working comfortably. Whether sitting or standing the working height is critical to avoid undue back strain. A wrong working height also creates issues with access to work.

TIP 8 Always remember to work with the grain wherever possible. This will avoid grain tear out and splintering, but this also requires you to have a clamp that allows you to position the work properly.



Full tilt and rotational facility is a must for accessing work easily

TIP 9 A clamp fixing head should allow your work to be tilted from a horizontal to a vertical position. Rotated though 360° around the clamp and also to be rotated on its axis through 360° too. You can see this unit has a ball and socket joint which allows for easy movement and a slot on the sleeve/collar which also rotates to allow the item to be tilted.

TIP 10 Make sure the table or bench on which you place your clamp is substantial enough to minimise vibration or movement when working on it.

## **MANUFACTURER INFO**

The Hydraclamp used here is from Spencer Franklyn. Product no: SF-1310M
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# DIRECTORY INTRODUCTION & CONTENTS

One of the great pleasures of woodworking is choosing your timber, buying hand and power tools or new items of machinery. Workshops are a thing of beauty and are where the latest projects are conceived and brought to fruition. Having the right kit, at the right price and of the right size is essential to do the job in hand. Here at GMC Publications we try at all times to understand the needs of our readers and provide you with expert advice, through our trusted woodworking titles.

To help you make informed decisions and in conjunction with providing some helpful tips on using items and kit, we've tried to provide information that will save you time and hassle all in one place. We've combined our Workshop Guide and The Woodworker's Directory to create one useful resource guide to woodworking. By looking through these pages you'll be able to quickly

access information that's not only helpful, but will save you some time in seeking out the stores and manufacturers.

On the following pages you'll find an indispensable directory of woodworking related retailers where you'll be able to find people who'll help you with any queries you have regarding everything from timber, machinery, tooling or courses. They're just a call or click away and ready to help and we have categorised everything for you to make it really user-friendly.

We hope you'll keep The Essential Workshop Guide with you in the workshop at all times, and are sure it will provide you with a readily accessible resource of contact details, that will help you get the job done, in no time and to the highest possible standard.

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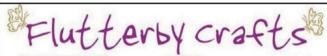
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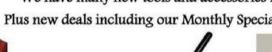
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