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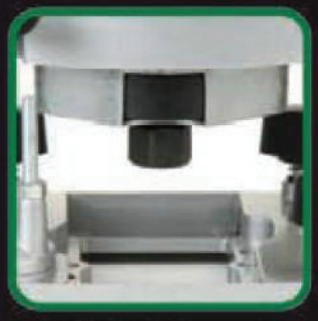

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WELCOME

SEE YOU AT THE SHOW!

It's show-time again – the International Woodworking Exhibition is on from 8-10 February at Alexandra Palace in London. The fact that this, our March 2008 issue, will be on sale the day the show opens is something of a coincidence. But, magazine schedules aside, I'm looking forward to meeting everyone on the Magicalia stand. I'll be there on the Friday and Saturday, so if you happen to read this and you're at the show, come on over and I'll get the kettle on!

For those of you who can't make the show, we'll have a run-down of events and plenty of pictures to show you in a future issue of The Woodworker. There's been a lot of discussion on GetWoodworking.com about the show, so it'll be interesting to see what everyone says on the forum afterwards.

A brand new series

So what's in store for this issue? We've got a great new six-part series on woodturning, in which Alan Holtham will be introducing us to the basics. The series kicks off with a look at the lathe, what makes a good one and what to look out for when making that all-important first purchase.

Spring forward

Now spring is just around the corner! So it's a great time to start planning any outdoor projects you want finished in time for some better weather. In keeping with this optimistic spirit, we're featuring a solid oak outdoor bench by Jim Robinson. We're not stopping there though; we've got all bases covered with the conclusion of Keith Smith's outdoor room series and a simple cold frame to make.

I hope you enjoy this issue of The Woodworker. Whatever your opinion, be sure to log onto www.getwoodworking.com and have your say. Alternatively, you can send us a good old-fashioned letter!

Ben Plewes

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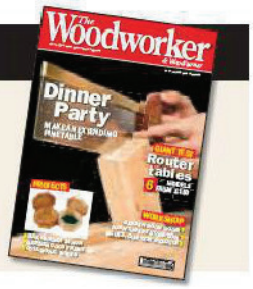

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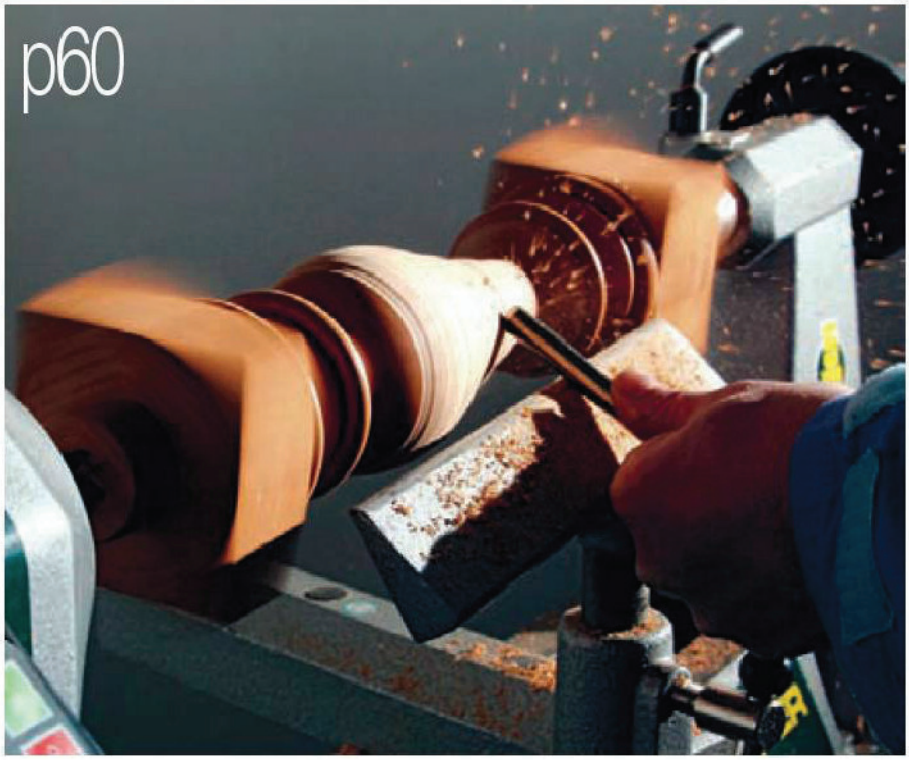

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Table for eight

PETER NICHOLSON

A recent client commission led Peter to design and build this extending pine dining table and a set of eight chairs. Here he describes making the table; he'll tackle the chairs next month

The design of this pine dining table and eight chairs was finalised after a few visits with my clients. They had a very good idea of what they wanted, but needed to discuss several design considerations (see panel). The end result is a substantial but very well-proportioned table with a chunky farmhouse appeal.

Setting the size

The table measures 1982 x 1219mm when closed, but extends in two stages to a length of 2744mm to accommodate eight people when required. The two spare leaves, each measuring 1219 x 381mm, are stored within the table when not required. One slides in through a letter box at one end of the table and rests on runners within the table; the other slides in at the opposite end of the table and also lies on runners which position one leaf above the other. The advantage of storing the leaves within the table is that the spare leaves won't be mislaid or damaged.

I also designed and made eight dining chairs to complement the table. One very important requirement was that all eight chairs had to store under the table when not in use, so careful consideration had to be given to the spacing of the table legs.

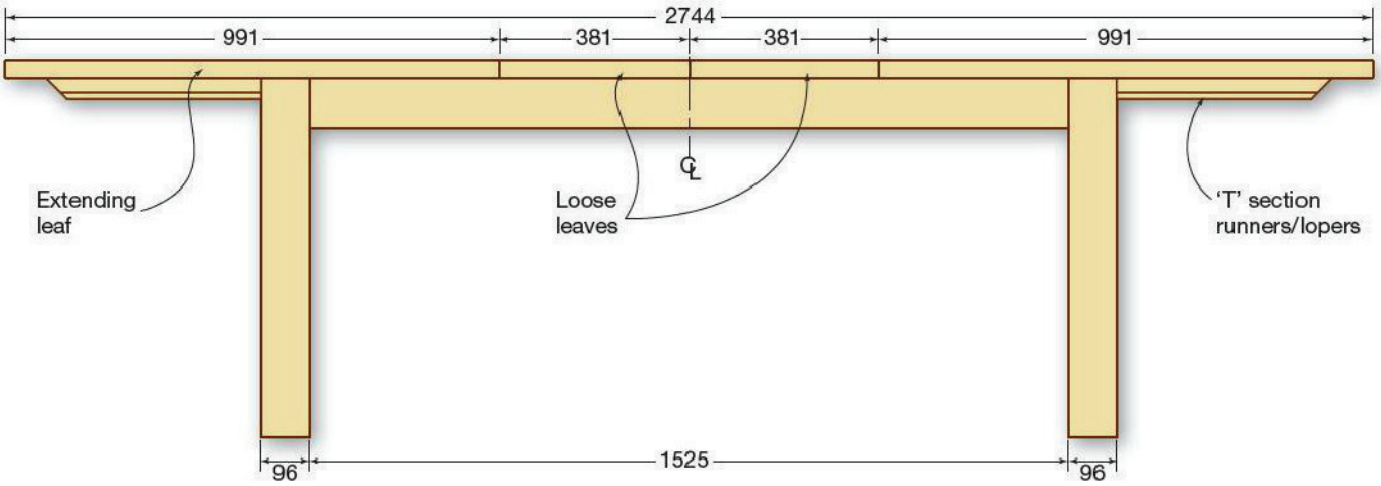
Tops before bases

To some woodworkers, it must seem strange to machine the timber for the table top rather than the base first, but bear with me while I explain why I did it this way. If you machine all the timber for the tops first but cut it oversize, you can bring it all inside the house to acclimatise, letting it cup and bow over the next few days while you make the base. You're then ready to start work on the table top, machining the timber to the finished size. This process is called secondary seasoning.

The grain direction for the table tops runs across the width of the table, not down the

Table fully extended showing loose leaves installed

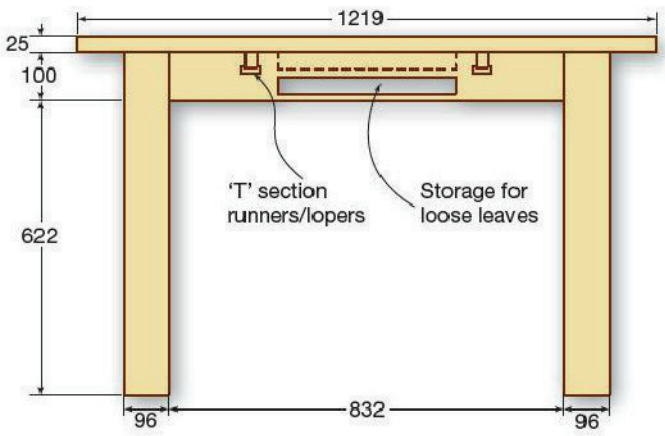
All measurements in millimetres



PINE TABLE CUTTING LIST

All dimensions are in millimetres

Part	Qty	L	W	T	Material
Legs	4	724	96	96	pine
End rails	2	952	102	35	pine
Side rails	2	1643	102	35	pine
Top	2	1219	991	35	pine
Leaves	2	1219	381	35	pine
Centre rail	1	922	102	35	oak
T-section runners	4	1780	31	25	oak
T-section runners	4	1780	40	12	oak
Angle iron	4	800	25	25	metal
Angle iron	4	270	25	25	metal



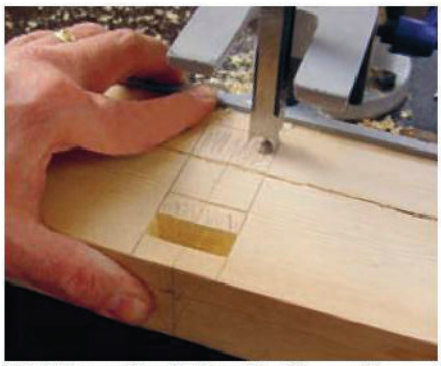
DESIGN CONSIDERATIONS

When designing the table, I had four major design problems to overcome. They were:

- How to make two large and heavy table leaves extend smoothly;
- How to keep the solid pine tops flat, because any cupping would cause the sliding mechanism to bind;
- Whether to have the grain direction of the top running down the length of the table or across the width;
- How to store the two loose leaves inside the table frame.

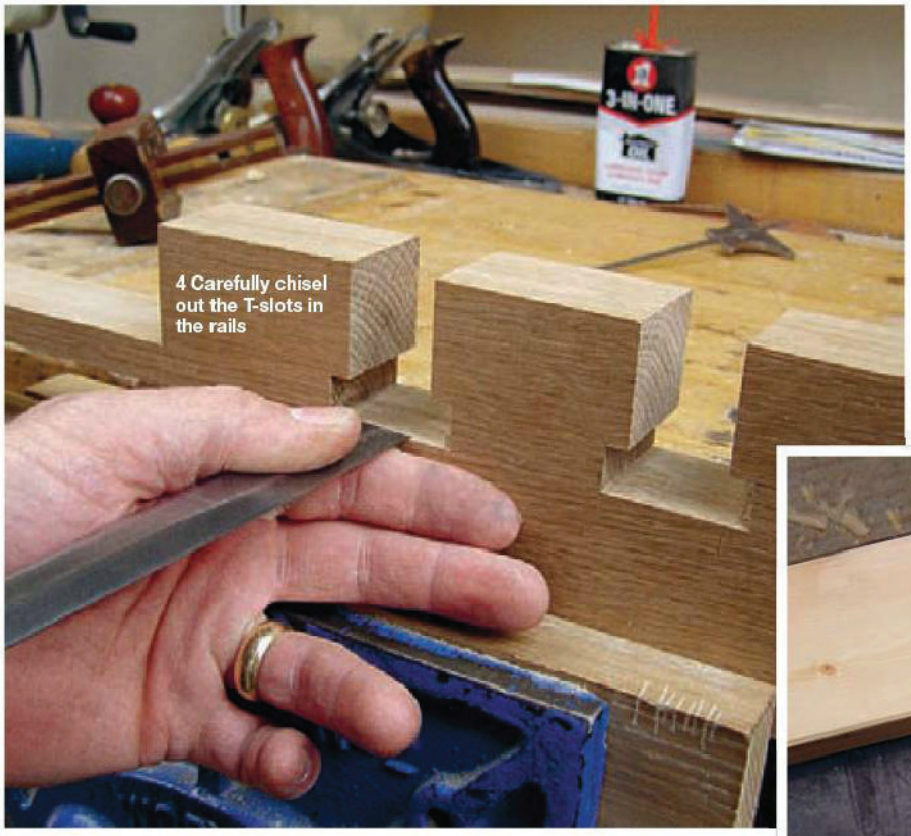
The feature explains how I resolved each one of these to my client's satisfaction.

1 Haunched tenons join the rails to the legs



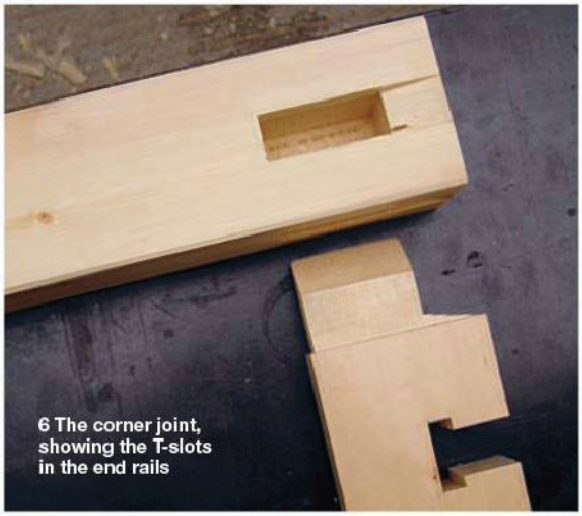
2 Cut the mortises in the rails with a mortiser

3 Check that the centre rail joints are a good fit

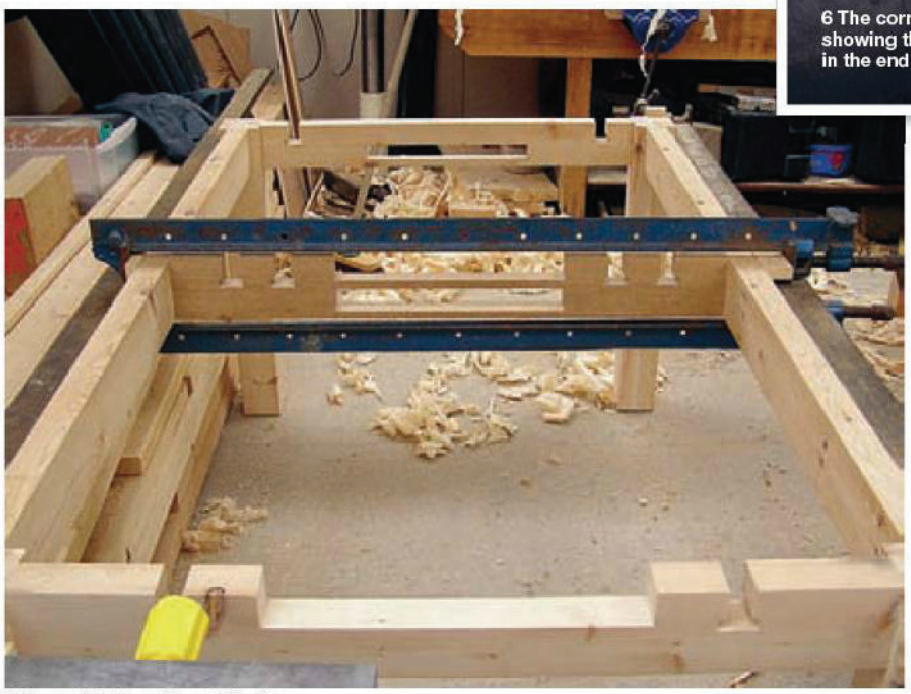


4 Carefully chisel out the T-slots in the rails

5 The centre rail, complete with slots for the spare leaves



6 The corner joint, showing the T-slots in the end rails



7 Assemble the rails and the legs and clamp everything securely

length, for the following reasons:

- Because timber expands or contracts across its width and not down its length, having the grain direction running down the table would cause the T-section extension runners (known as lopers) to bind.
- Edge jointing is much easier if the lengths of timber are shorter.
- When the table is extended, the joints between the loose leaves and the extending leaves will look much neater if the grain runs in the same direction.

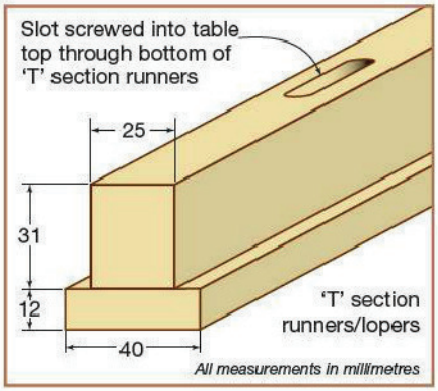
Machine up enough timber to make the top and loose leaves to the dimensions given in the cutting list, but leave them all about 3mm oversize all round. Store the timber inside the house for several days with battens placed between the separate layers to allow free airflow round them while they acclimatise.

Legs and rails

Machine eight pieces of pine to 730 x 100 x 48mm, and glue them together in pairs to make the required leg size of 724mm x 96mm square after finishing. Make sure the heartwood faces outwards, to stop the glue joint from trying to open up on the visible edges.

Next, machine up the pieces for the side and end rails, again following the sizes given in the cutting list, and cut the 25.4mm mortises in the legs. I used a 12.7mm hollow mortise chisel and cut from adjacent faces of the table leg to get the required size.

I cut the matching tenons on the four side and end rails using the bandsaw. As can be seen in **photo 1**, the tenons have a secret angled haunch which stops the rail from twisting, while the ends of the tenons are mitred to allow the long and short rails to meet neatly in the middle of the table legs.



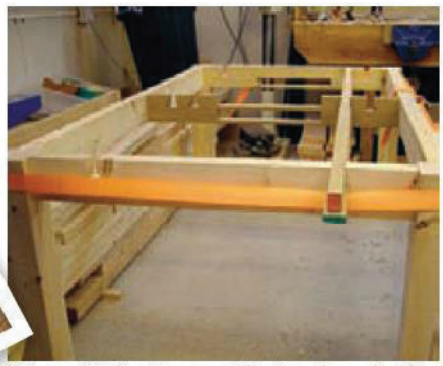
The centre rail

The centre rail is made from hard-wearing oak. It is fixed to the inside of the long side rails with double stub tenons. **Photo 2** shows the stub mortises being cut in the rails in two stages using a bench mortiser, and **photo 3** shows the completed joint, This oak centre rail also has two cutouts for the loose leaf storage, and four slots to accommodate the T-section lopers.

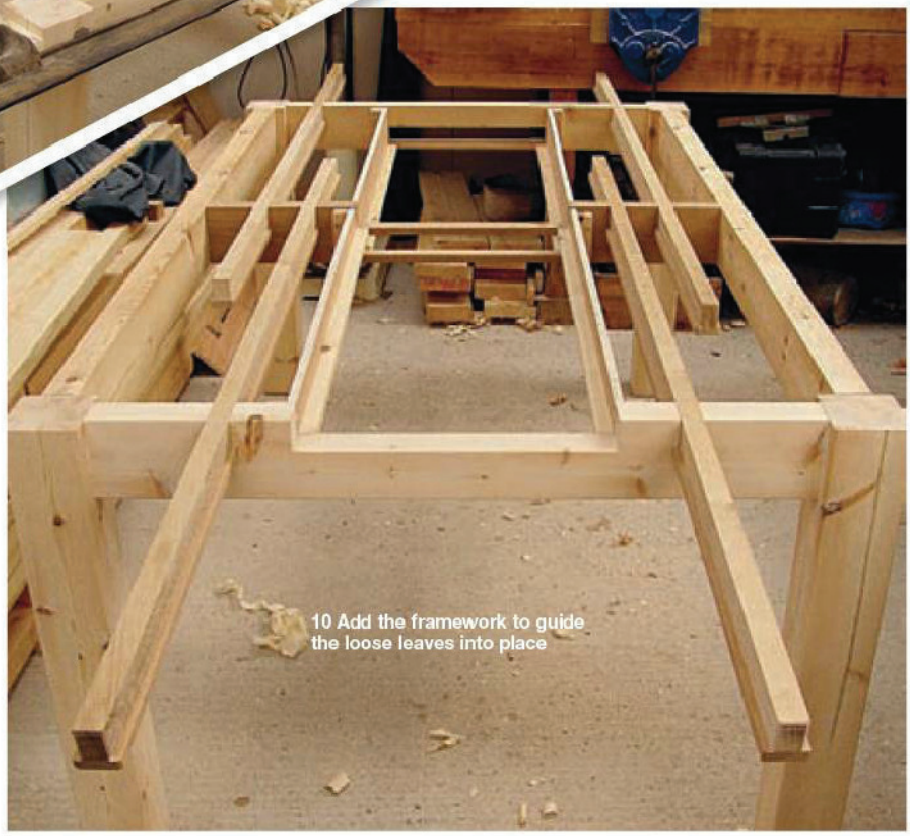
There are two pairs of lopers – the outer lopers and the inner lopers. Mark out the T-slots and the slots for the loose leaves on the centre rail, then transfer these lines onto the two pine end rails. These slots are roughly cut out on the bandsaw; then the cutouts are chiselled to the lines with a very sharp chisel, **photo 4**. **Photo 5** shows the centre rail complete, and **photo 6** shows a matching T-slot cut in the pine end frame.

The table can now be glued up and clamped, **photo 7**. **Photo 8** clearly shows how the two loose leaves enter from the end frames, and how one stores above the other because of their length.

8 Check that the loose leaves fit through their slots



9 Assemble the lopers and test each one for fit



10 Add the framework to guide the loose leaves into place

Preparing the lopers

The four T-section lopers are made from oak. Four are machined to 1780 x 40 x 12mm, and four to 1780 x 31 x 25mm. They fit together as shown in the detail drawing, above left.The assembled lopers should slide easily in their T-slots, so some hand planing may be necessary to achieve a smooth push fit. **Photo 9** shows one completed loper being tested for fit in its

11 Rub coloured wax crayon all over your saw table...

12 ...then rub one face of the glued-up table top over it

slots. **Photo 10** shows all four lopers ready to be screwed to the table tops, and also the simple framework (not included in the cutting list) for guiding the loose leaves through the centre rail where stops will be added later.

Making the table tops

The wood you prepared for acclimatising earlier can now be machined to its exact sizes. I glued 35mm thick pine boards together to create the two large leaves, each measuring 1219 x 991mm, and the two narrow leaves measuring 1219 x 381mm. I used biscuits to help locate the individual boards as I assembled the leaves. Ss you do this, remember to alternate the annual rings to keep the tops flat.

Getting the tops flat

The big tops were glued up in stages for ease of flattening and removing any twist. To get the tops flat, I needed something flat in the workshop to which I could clamp the assemblies. The flattest thing I have is my cast iron circular saw table with the saw wound down below the table surface.

After gluing up the table tops, I rubbed coloured wax crayon over the whole top of the table, **photo 11**. I then rubbed the assembled sections of the tops over this, **photo 12**. As can be seen from **photo 13**, any high spots become clearly visible and can be planed off. Continue this process until the blue crayon marks disappear, then repeat the same process on the opposite face of the table top. To make planing easier, rub a wax candle onto the sole of the plane, **photo 14**.

13 Plane off any blue-marked high spots by hand

14 Rub candle wax on the plane's sole to reduce friction

15 Drill and countersink slots in the angle iron

16 Form rebates for the strips with a router and circular saw

17 Screw the angle iron strips into place

Counteracting cupping

To keep the tops flat I bought a couple of lengths of 25mm angle iron and cut them to the lengths given in the cutting list. I then rebated them into the underside of the table tops using a portable circular saw and a router, both run on a straight edge clamped to the table top.

To allow the table tops to expand and contract, the angle iron has first to be chain-drilled to form slots, and is then countersunk, **photo 15**. **Photo 16** shows a length of angle iron ready to be fitted into the narrow loose leaves, and **photo 17** shows the two wide leaves completed.

Fitting the table tops

Establish a centre line on the table frame, exactly in the centre of the oak centre rail. Lying underneath the table, drive screws up through the slotted lopers into the pine tops. Slot screwing is vital because there is a cross-grain conflict between the oak lopers and the pine table top, and this fixing technique will allow the components to move without binding as temperature and humidity levels vary.

When you have attached the tops to the lopers, check that both leaves slide smoothly; some candle wax on the runners will help here if necessary. When both the leaves are together you can check that the table top joint is flat and parallel.

Extend the table, insert both loose leaves and make the same checks. Mark the mating inner edges of the leaves for location dowels, drill the holes and fit hardwood tapered dowels. Finally, fit two round table catches underneath the tops of the main extending leaves.

Finishing touches

Choosing the right finish is a problem faced by all woodworkers, because the ideal product has not yet been invented! One option is to have the table sprayed with one of many lacquers available. Although this gives a durable finish, it's very hard to repair if it is damaged, and I dislike the plastic look that modern finishes give. Another option is wax; although not a hard finish, it is easy to repair and I do like the mellow warm colour, so after some discussion with my clients, wax was the chosen finish.

I sanded the table down to 150 grit and wiped it with a tack cloth; then I applied the wax sparingly with a lint free cloth, and buffed it up after about ten minutes. If you put too much wax on, or worse leave it on too long without buffing off, the finish will become very blotchy. Several thin applications are the order of the day.

NEXT MONTH...

... I'll describe making the eight dining chairs to complete the commission

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A seat in the sun

JIM ROBINSON

There's something quintessentially English about an oak garden bench. Jim Robinson draws on years of tradition to create this sturdy masterpiece

Almost fifty years ago, I constructed a garden seat based on a design in *The Woodworker* by Charles Haywood. It was made in Japanese oak and has given good service over the years, but it's now sadly beyond any further patching up, as the photograph below left shows. This seat which forms the subject of this project is a replacement made with European oak. It's 4ft 3in wide and stands almost 3ft high at the back (see **fig 1**).

Stock sizes

I've been using some fairly thick sections of timber recently to construct a bed and a large table, so I was able to use timber left over from these projects for this seat. The legs and arms were made from 3in thick sawn timber, and the seat supports and lower stretchers were taken from 2½in sawn stock. The long rails were from 1½in thick sawn timber and the seat and back slats were from 1in sawn stock.

Preparing the seat ends

The components that make up the seat ends are all shown on a 1in square grid in **fig 2** overleaf. If you have access to a commercial photocopier or computer, you can enlarge these up to full size (by 200 per cent) to use as patterns. Cut all the patterns out, leaving an extra ¼in around the outline. Use them to make the most economical use of the timber available, **photo 1**. Then remove the sapwood on the bandsaw, **photo 2**.

When you are satisfied with your positioning, draw around the patterns. Then plane and thickness the timber to 2¾in for the legs and arms, and to 1½in for the centre and side seat supports. Fix your paper patterns to the planed timber using drafting tape; then transfer the outline to the timber using carbon paper, **photo 3**.

Use a bandsaw to cut out all the blanks, **photo 4**, sawing a fraction outside the line. Make sure you leave sufficient at the ends for the tenons. Use a planer to smooth the flat parts of the legs, **photo 5**, and a combination of spokeshave, belt sander, plane and scraper to smooth the rest.

Assembling the seat ends

When you have all the parts ready, position the front and rear legs the correct distance apart and then place the arms, side seat rails and stretchers on top of them in their correct positions, **photo 6**.

It is now a simple matter to draw a line at each side of the cross pieces so that the mortise positions can be determined, also the angle of the mortises relevant to the face. Use a pencil point resting against the legs to draw the shape and position of the shoulders, ready for when you cut the tenons.

GARDEN SEAT CUTTING LIST

All dimensions are in inches. Allowances are made on length only

Part	Qty	L	W	T
Front legs	2	26	5¼	2¾
Rear legs	2	36½	6	2¾
Arms	2	22	4	2¾
Stretchers	2	19½	2	2
Front seat rail	1	49	4	1⅜
Rear seat rail	1	49	3	1⅜
Side seat rails	2	18½	3½	2
Side seat supports	2	18½	3	1½
Centre seat support	1	20½	3	1½
Front/rear seat slats	2	52	3	⅞
Other seat slats	8	52	1¾	⅞
Upper back rail	1	49	6	1⅜
Lower back rail	1	49	2⅝	1⅜
Back slats	14	14	1¾	¾

Note: Considerable saving in materials can be made by interlocking the 2¾in thick parts if a wide 3in sawn board is available.

Note that the stretchers are positioned in the centre of the leg thickness, but the side seat rails are positioned so the side facing the seat centre is flush with the inner face of the legs. This makes it easier to fix the side seat supports on the inside of the rails.

Cutting the mortises

I removed most of the waste from the mortises with a router guided by a fence, **photo 7**. If you use this method, you'll need to clamp a straight edge to the side of the curved section to provide a bearing surface for the router fence. Similarly, clamp a straightedge to the side of the back legs to guide the router, **photo 8**, so the mortise is sunk at the correct angle.

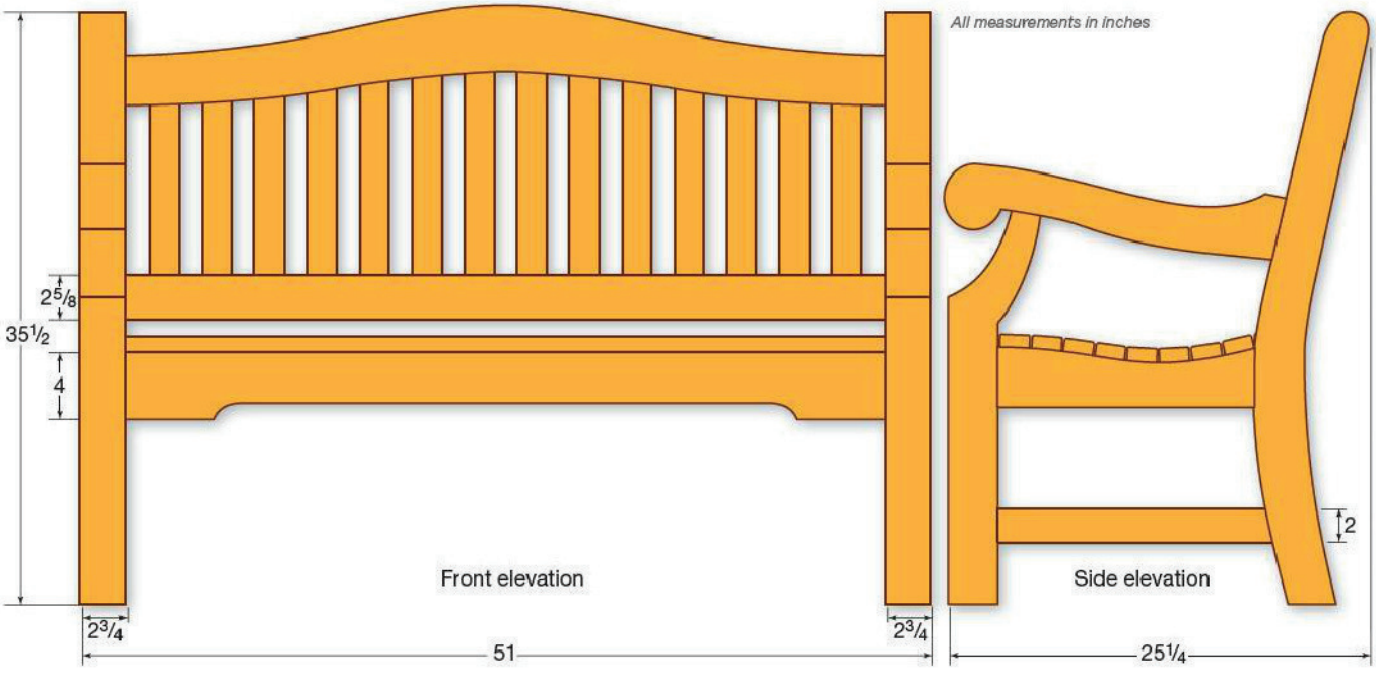
To complete the mortises, trim their ends square by hand. Of course, if you have a mortising machine you can cut all your mortises in one operation.

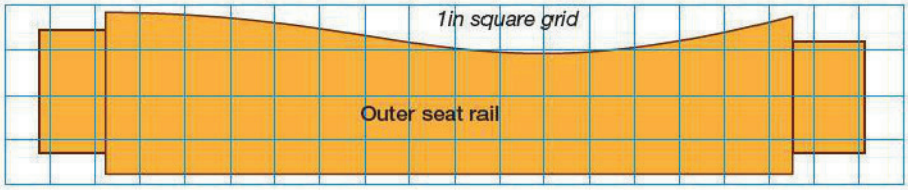
1 Use paper patterns to position the components for the most economical use of the timber

2 Remove the sapwood with a bandsaw before planing and thicknessing the wood

3 Transfer the outlines of the components to the planed timber using a pencil and carbon paper

Fig 1





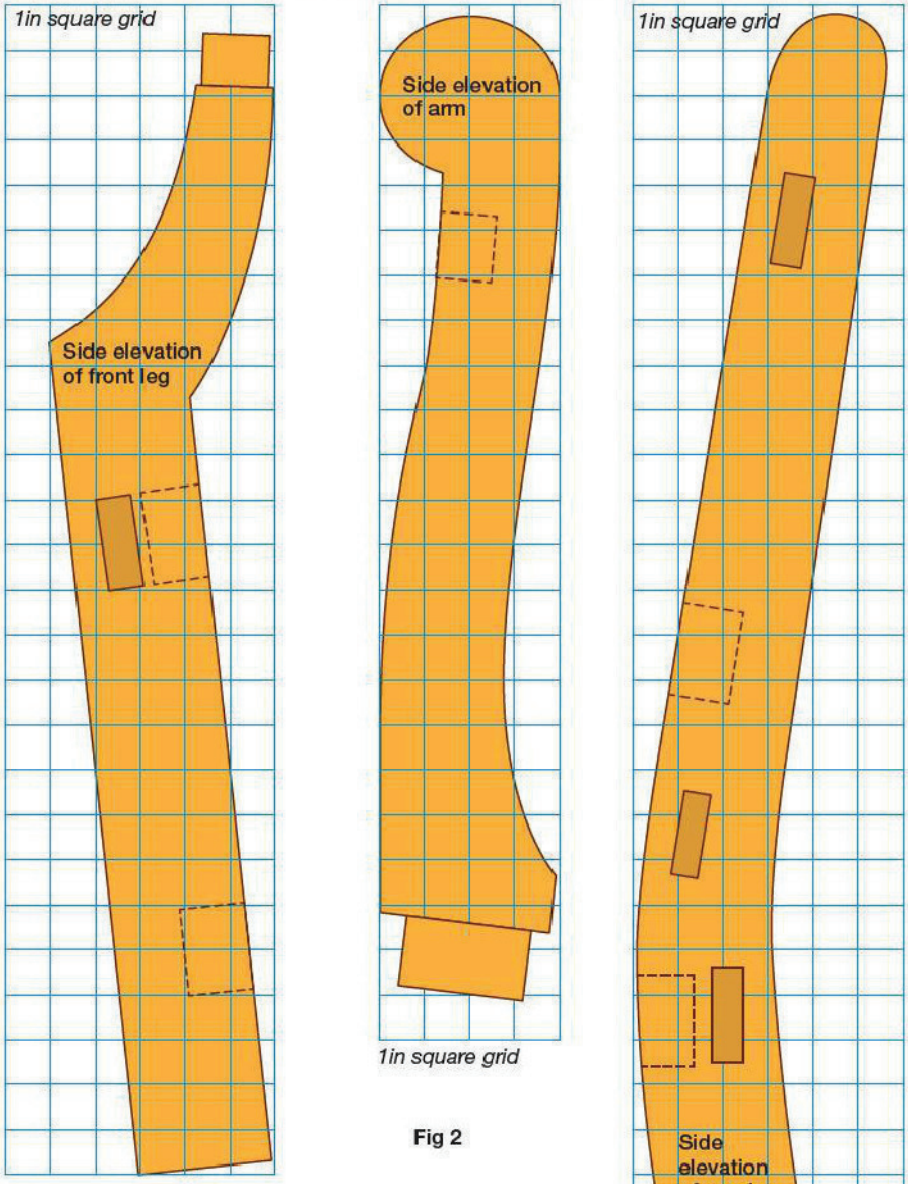


Fig 2

Note: The mortise positions shown are a guide only and should be determined by direct measurement

6 Place the cross pieces on top of the legs and mark their positions. Also mark the shoulders on the underside of the cross pieces

4 Cut the parts to the outline on the bandsaw, cutting just outside the marked lines

5 Plane the flat parts as far as possible on a planer

Cutting the tenons

Form the tenons on the ends of the stretchers and the side seat rails. I cut all the shoulders by hand, but cut the tenons to thickness using the bandsaw guided by a fence. Some of the shoulders are curved slightly, so I shaped these with a paring chisel.

Gluing up: the first stage

Glue each pair of legs together with a stretcher and a side seat rail, but leave fitting the arms until later. Hold each assembly squarely and securely in cramps until it's set hard, **photo 9**.

I used Cascamite glue because the seat has to endure outdoor conditions. I've tried polyurethane glue in the past, but I prefer Cascamite because I find it less messy. Use

7 Use a router to remove most of the waste from the mortises, ready for trimming by hand

8 On the back legs you'll also need to provide a straight edge for the router to bear against

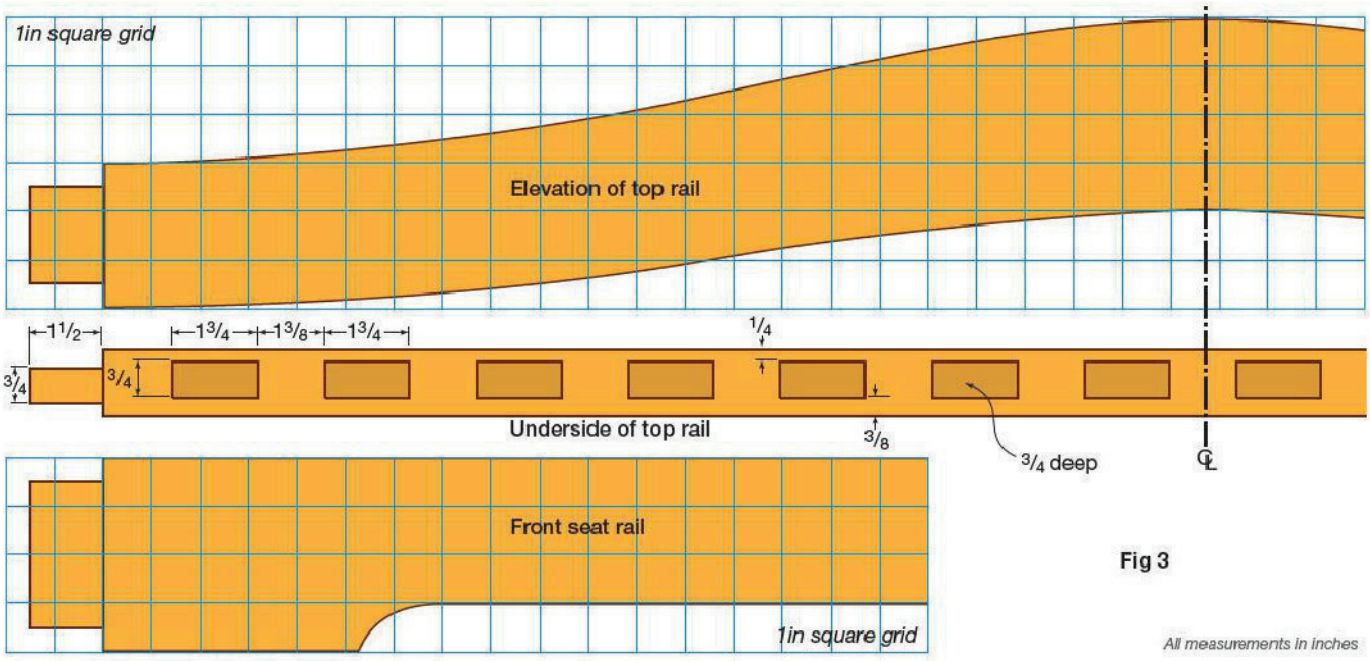


Fig 3

All measurements in inches

plenty of glue in each joint so that there are no capillary paths to allow rainwater to penetrate. This does involve more cleaning away of surplus glue, but unlike a piece of indoor furniture any remains will not become obvious with staining and polishing.

Adding the arms

When the cramps have been removed, lay the arms across the legs and mark the shoulder at the top of the front leg and at the end of the arm where it joins the back leg, **photo 10**.

The arms have to fit into the mortises on the rear legs, so you need to form a slight chamfer at the end of the tenon to enable the arm to fit over the tenon at the top of the front leg. The arm will be quite secure, especially when the joints are pegged. Glue and cramp the arms in place, **photo 11**, againchecking that everything is square, and set the assemblies aside to dry.

The front and rear rails

Cut the front and rear seat rails to length and form the tenons to fit the mortises already made in the legs. Shape the underside of the front seat rail as shown in **fig 3**. Mark out the shape of the top back rail using the squared drawing in **fig 3** as a guide. Cut both rails on the bandsaw, and smooth the sawn edges. Then form the tenons on their ends.

Drill and counterbore four holes up through the underside of each seat rail (shown in **photo 15**). The counterbores should be deep enough to accept 2in No 8 brass screws, so that they will have about ½in of thread projecting to enter the undersides of the front and rear seat slats.

The back panel

Before joining the seat ends together with the front and rear rails, you need to assemble the back panel. This model is a two-seater, so there are fourteen evenly spaced slats in the back panel. If you want to build a three-seater, simply extend the rails and add more slats.

The rear slats are 1¾in wide and ¾in thick, so make the mortises in the upper and lower back rails to this size, **photo 12**; space them as shown in **fig 3**. Because there are no shoulders, fitting the slats is

9 For each end frame, glue the legs, stretcher and seat rail together and clamp them securely

10 Lay each arm across each end frame and mark the shoulders with a marking knife

11 Cut the mortise and tenon on each arm, fit it to its end frame and glue and clamp it in place

12 Sink the mortises in the back rails with a router and then trim them square by hand

13 Assemble the back panel and clamp it before trimming the rails to length and cutting the tenons

easy, and if one has to be replaced in the future it will be simple to remove. Use a router to cut the mortises to depth, and square the ends to the 1¾in length by hand. Then assemble the back panel and cramp it up securely, **photo 13**

Assembling the carcass

Before gluing the ends to the rails to form the basic carcass, **photo 14**, take out a notch in the centre of the inside of both front and rear seat rails (**inset**) to receive the centre seat support. It's much easier to do this at this stage of the assembly, before the rails are glued to the ends.

After removing the cramps, shape the side seat supports to the same profile as the side seat rails, but with a projection on each end (see **fig 4**). Shape the centre seat support in the same way, with a projection at each end to fit the notches in the front and rear seat rails.

Making the seat slats

Cut the seat slats from 1in sawn material, and plane and then thickness them to ⅞in (or, if the material allows, to 1in). Before fixing the slats, take off the sharp edges by planing a 45° chamfer on the top edges. Work a ⅜in radius on the front edge of the front seat slat using a self-guided router cutter. I also used a ⅛in radius self-guided cutter to take the sharp edges off the ends of all the rails before joining everything together.

Preparing the seat supports

The seat slats are fixed in position by 2in No 8 brass screws driven up from below, through clearance holes drilled and countersunk in the seat supports and through counterbored holes in the front and rear rails.

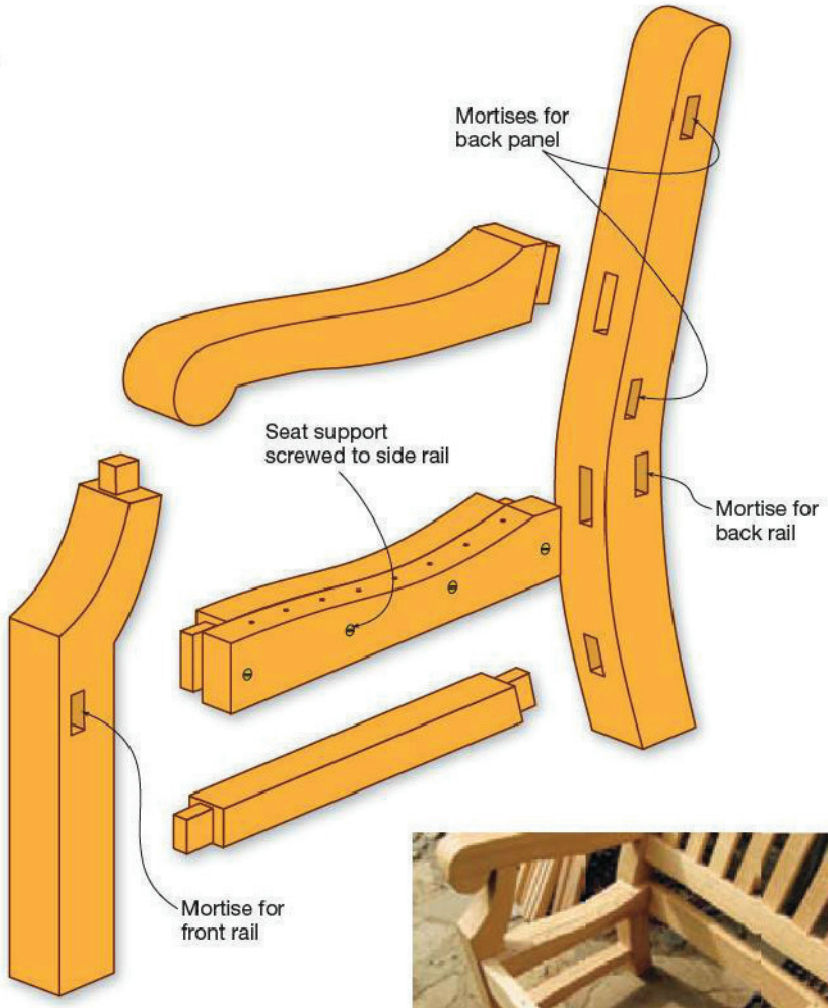
When you have prepared the seat slats, fit the centre seat support in place without adhesive, and cramp the side seat supports to the side seat rails. Space the eight seat slats evenly one by one on top of the seat supports and mark the centre of each slat lightly on the sides of the seat supports. Then remove the seat supports and drill the eight clearance holes through each one (shown in **photo 15**).

Fitting the seat slats

Glue and screw the side supports to the side seat rails with four 2in No 8 brass screws. Glue the centre seat support in position and strengthen the joint by

14 Cut notches in the front and rear seat rails for the centre seat support (inset), then assemble and cramp up the main carcase

Fig 4



inserting a 2in No 8 brass screw through each end at an angle into the rail below, **photo 15**

Cramp the seat slats in place, **photo 16**, using the offcuts from shaping the seat supports to secure them, and drive screws up into them from below through the pre-drilled holes in the seat supports. Add the wider front and rear slats, driving the fixing screws up through the counterbored holes in the front and rear rails.

Pegging the tenons

All the tenons are pegged with ¼in diameter oak dowels. Holes are first drilled to a little over half the thickness of the legs to ensure the hole goes through the tenon and a short way beyond.

I haven't found a commercial source of ¼in diameter oak dowel, so I made my own using a dowel plate. I first shaped the pegs roughly a little oversize from straight-grained off cuts before driving them through the dowel plate, which was strategically placed over a hole in the bench, **photo 17**. This results in a clean, accurately-sized dowel.

Glue the dowels and drive them into place, leaving their heads slightly proud of the surface. When the glue has set, cut the dowels off almost flush with the surface; I used a special saw for this which is made without any set so it doesn't mark the background. Then pare them flush and sand them smooth.

Finishing

I prefer not to apply any finish to an outdoor seat, because with time the oak will mellow naturally to a lovely silvery appearance. Steer clear of any form of varnish; it will only look a mess in time, when part has eroded away due to weathering and the action of ultraviolet light. If you wish to prevent algae developing, then simply apply a couple of coats of clear wood preservative.

16 Use cramps and the offcuts from the seat rails to hold the slats in place. Then turn the bench upside down and drive in the slat fixing screws from underneath

15 Screw the side and centre seat supports to the bench after drilling clearance holes through them for the slat fixing screws

17 Use a dowel plate situated over a convenient hole in the bench to make the oak pegs, then use them to peg all the main joints

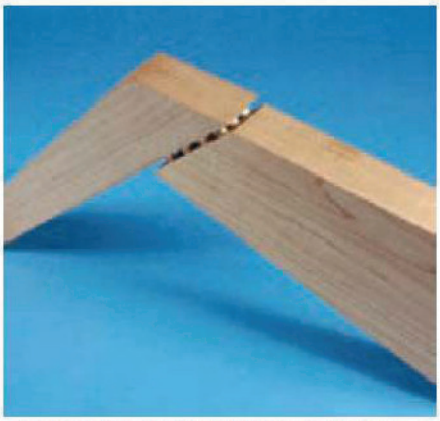
NEXT ISSUE

The April 2008 issue is out on March 14th

Details are correct at time of going to press but are subject to change without notice

BATHROOM STORAGE

Paul Sellers turns a void into a cupboard



JOINTS WITHOUT JOINTS

Ralph Laughton looks at the Joint Genie system

SILENCE PLEASE!

Ian Wilkie keeps order with a blackwood gavel

TRELLIS SEAT

Peter Bishop creates an unusual garden bench

In the frame

PETER BISHOP

Keeping early spring frosts at bay means you can give all sorts of garden plants a head start. Peter Bishop's simple cold frame is easy to build, and you can easily scale it up in size if you need more space

This project has been deliberately designed on the small side. Recognizing that growers may be beginners, have small gardens or live in homes with restricted space, this could be considered a starter cold frame. However, the beauty of this project is that you can alter the sizes to suit your requirements.

With any angled or shaped project like this, it's always helpful to draw out the difficult sections full size or, at the very least, to scale. For this cold frame, all you really need to do is to draw out one end frame section showing the positions of the legs and rails. The top rail will be sloped, and the angles for the halving joints can then be taken directly from the drawing with a sliding bevel.

Choosing materials

I recommend that you use preservative-treated timbers – at least for the main frame. It should then have a life expectancy of at least 20 years. I also used treated feather-edged boarding for the cladding, but this isn't essential. Exterior-grade ply, simple T & G boarding or any other form of weatherboarding could be used instead. If the cladding isn't treated and deteriorates before the framing does, it can simply be replaced.

All the wood should be readily available from your local DIY superstore, but if you don't want to pay top prices, order it from a timber merchant instead. Any preservative-treated timber you buy should have stood for at least 48 hours after treatment. This is to ensure that all excess preservative has drained off. If the stock you buy is still damp, put it in a stack with battens between the layers until it dries off. This will make it lot more pleasant to use.

The lid is glazed with clear polystyrene sheet. Make sure you buy the exterior grade, which doesn't become brittle and shatter due to cold and exposure. It's quite

1 You should be able to mark out the components in pairs

2 Make up the first end frame and check that its two bottom corner joints are square

3 Assemble everything with sash clamps and screw the end frames to the cross rails

4 Clad the back and the front first, flush to the edge of the frame

expensive, but is much lighter than glass and far easier to work with.

Preparing the parts

The construction is very simple, involving halving, butt and some mitre joints plus screws and PVA glue. Start out by making the pair of end frames. Take the top rail length and end angles off the drawing and mark them out inpairs, **photo 1**. To get the position of the leg halving joint, place a piece of the frame timber up to this line and mark out the width of the joint. These lines need squaring across; then you can use a gauge to mark out their depth. The top of each leg can be marked out in a similar fashion.

There are eight joint parts to cut to fit the

COLD FRAME CUTTING LIST

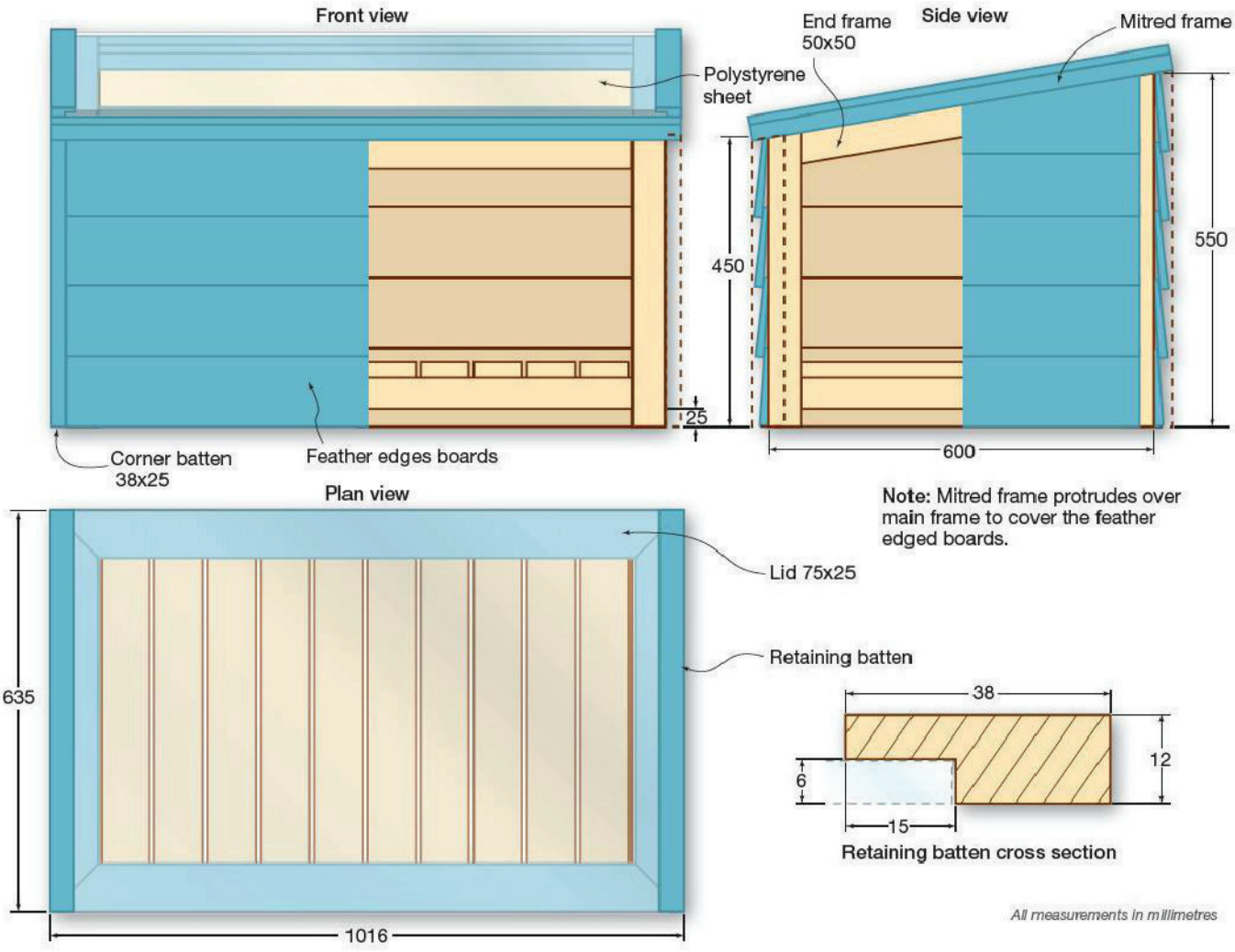
All dimensions are in millimetres

Part	Qty	L	W	T
Front corner posts	2	450	50	50
Rear corner posts	2	600	50	50
End rails	4	750	50	50
Cross rails	4	1050	50	50
Front corner battens	2	450	38	25
Rear corner battens	2	600	38	25
Cladding	ca 18m	125	19	
Base battens	10	600	75	19
Frame/lid cross rails	4	1050	75	25
Frame/lid side rails	4	750	75	25
Lid retaining battens	2	750	38	12
Clear plastic sheet*	1	750	600	4

* Make sure you buy exterior-grade clear polystyrene sheet, which will not become brittle over time. In addition you will need two 75mm butt hinges, two window stays, PVA woodworking adhesive, rust-resistant screws and some clear wood preservative.

5 After fitting the four corner battens, clad each end frame

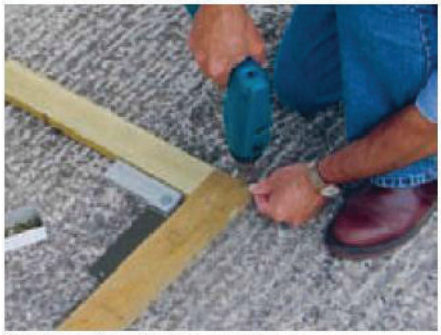
6 Mitre-join the top frame and fit it to the top rails of the frame



Note: Mitred frame protrudes over main frame to cover the feather edged boards.

All measurements in millimetres

7 Fix the spaced-out floor battens to the lower cross rails



8 Make up the lid with a screwed halving joint at each corner

9 The butt hinges don't have to be let into the woodwork

10 Add the two retaining battens, allowing room for the sheet to expand

top rails to the legs. Cut the shoulders first, either by hand or on the bandsaw. Then cut down the depth line to remove the waste. Cut the ends of the bottom rails in a similar fashion. The halving joints at the bottom of the legs are set up slightly from the ends to provide some ground clearance. These have two shoulders and the waste needs to be chopped out carefully with a chisel. Assemble each joint dry, on the full-size drawing if you have one, and check that the proportions and dimensions are correct. Adjust as necessary. Then cut the four intermediate rails to length.

Extra preservative

Because the joint-making process has breached the integrity of the preservative treatment, you now need to apply a flooding coat of preservative to each fresh cut. The original preservative treatment provides each piece with a cocoon of preservative several millimetres deep. Cutting through this will reduce its effectiveness; hence the need for this supplementary treatment.

Try to keep originally treated timbers at the bottom ends of each leg. It's at this point, in contact with the ground, where most of the fungal activity takes place. As an extra precaution, stand each leg in a container full of preservative and let it soak in overnight. This should help to maintain the useful life of the timber.

Assembling the frame

Once everything has dried off again, the frame can be assembled. A dollop of glue in the middle of each joint adds a bit more security. If you are using softwood for the frame, no pre-drilling will be required for the screws. Two per joint should be enough.

Make the ends up first, **photo 2**. Check they are square, where appropriate, before driving the second screw into each joint. It's a bit of a fiddle to get the intermediate rails in place on your own, but it can be done; a couple of sash clamps are really useful here, **photo 3**. Use long screws to hold them in place and drill pilot holes through the end frames. Don't worry about screwing into end grain; the cladding will hold everything in place. Just be careful where you fix the top cross rails. It's best that they follow the vertical line rather than the slope of the lid.

Adding the cladding

Start the cladding on the front and back. Each piece can be cut dead to length once you've worked out how many lengths you need. Place the first one at the bottom, just off the ground level point, and fix it with one screw only into each of the legs. Put the next section in position, overlapping the first by about 25mm, and drive one screw in through the gap between the two boards.

A single screw fixing allows the boards to move as they dry out and become wet again. Two screws may appear to fix them firmly, but this will lead to splitting. Work up the front and back, finishing flush with the angle of the slope. The top boards should also only need one screw per end, **photo 4**. The lid frame will overlap these eventually, masking any slight movement.

Tidying the corners

Before starting to clad the ends, fit the corner battens. These need to be cut on one end to match the slope. They are positioned on each end frame, to cover the ends of the cladding already laid. It makes a tidy job and should give definition to the overall look of the cold frame. With these in place, follow the same cladding procedure for each end, **photo 5**. The only difference is that the top pieces will have to be cut to fit the slope of the frame.

The top frame

Once all the cladding's on, cut and fit the top frame. Make it slightly larger than the overall width of the structure below. Simple mitre butt joints are ideal for the corners. Fix it in place by screwing down into the end frames and the top rails. Use as many screws as you feel necessary, **photo 6**.

You can also fit the spaced shelving in the bottom of the cold frame now. Notch the two end pieces to go round the legs. Cut the pieces to length and fix them in place with one screw at each end, leaving a gap of about 25mm between each one, **photo 7**.

Adding the lid

Make the lid to match the width of the top frame, but slightly larger than the front-to-back depth. Once fitted, this will give you a lip on the front edge that makes the lid easy to open. Use halving joints at the corners, and fix them with a dollop of glue and four screws per joint this time, **photo 8**.

A pair of simple butt hinges are then fitted to the lid. Don't bother to set these in recesses, **photo 9**. Attach the lid to the top frame, setting the back edges flush with each other.

The clear polystyrene will have to be cut to fit. Once it's ready to go on, drill one hole only, in the top edge of the polystyrene, in the middle. The retaining battens will hold the edges down and square, allowing the sheet to expand and contract in the heat and cold. The hole in the top should be larger than the diameter of the fixing screw. Don't drive the screw in too tightly; it's only there to stop the polystyrene falling off.

The two retaining battens are rebated to fit over the side edges of the sheet, **photo 10**. Cut the rebate out of a solid piece with a router, or make it up with a couple of thinner strips. Once more, allow plenty of room for expansion and contraction.

Finishing touches

A couple of home-made stays or long window stays can now be fitted each end. This enables the cold frame lid to be progressively opened as the weather improves during the growing season.

The job is now done, unless you want to colour the whole thing with an exterior-grade finish. I had to dismantle the lid again before painting the frame to avoid getting any on the polystyrene. A couple of coats later I was able to put it all back together again. Now I'm waiting for the weather to improve a bit before the cold frame can be brought into service!

PETER DUNSMORE

An octagonal box has a pleasing symmetry, and is a satisfying test of your woodworking skills. Here's how to make one... or two!

Figure of eight

Making an eight-sided box isn't that much more difficult than making a four-sided one. The only differences are that the angles are set at 67·5° instead of the easier 45°, and that there are more pieces to be assembled. You need to take just as much care when cutting the various parts, but using a specific router cutter makes this stage much quicker and easier.

As for the choice of timber, this really is a matter of personal preference. So little timber is required that this is a good way of using up offcuts of timber and leftover veneers. For the example shown in this project, I used some Canadian maple with a piece of birds'-eye maple veneer for the top. I added some thin black stringing. The second box pictured is identical in size, but is made from oak with purpleheart banding.

The materials you'll need

The timber used for the project should, ideally, be cut from one piece of timber to ensure grain continuity. For this box you'll need about 600mm of wood 80mm wide and 8mm thick, a similar length of 50 x 4mm wood for the box lining, and two 150mm square pieces of 6mm plywood for the base and lid. Add a piece of veneer of your choice for the box lid, some trimmings for the stringing and some baize to line the box and cover the base.

Laying the veneer

Before starting work on the box sides, lay the veneer to be used for the box lid onto a piece of 6mm plywood cut a little oversize. An effective method of achieving this is to apply adhesive evenly to the plywood using a wallpaper seam roller, and then to sandwich the veneer and plywood between two carpet tiles and offcuts of chipboard. The carpet tiles are effective in following the slight contours and ensuring an effective bond. The clamps should be tightened evenly around the perimeter of the chipboard and the assembly allowed to dry thoroughly.

Preparing the parts

Mark out the position of the saw cuts on the timber, allowing a few millimetres between the components, and lightly number each piece in sequence. This will enable the grain to flow through the sides of the box (apart from the join between the first and last piece).

Fit a straight fluted cutter to the router table and set the depth of cut to 4mm. Position the cutter to cut the rebate to the thickness of the plywood top including the veneer, **photo 1**.

Set the table on the bandsaw to approximately 22·5° and cut the eight components from the timber. Cut between the lines previously drawn, **photo 2**, and remember which way the slope is to go on each piece.

Accurate bevels

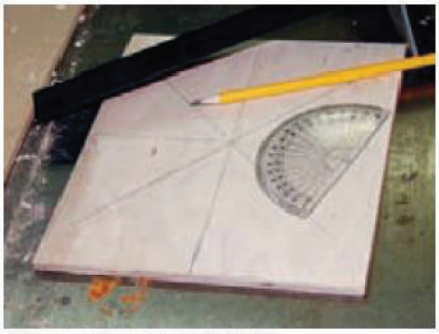
For a box such as this to be successful, it's important that each of the eight components is identical in size. The easiest way of ensuring this is to make a template. An offcut of 9mm MDF is ideal; cut this to the exact width of the box side – in this

1 Cut a rebate on the timber to match the thickness of the veneered plywood

2 Use the bandsaw to cut the components slightly oversize

3 Trim the bevels using a router cutter. Note that the finger guard has been raised for clarity

4 Lay the eight pieces in line against a straightedge and join them with masking tape

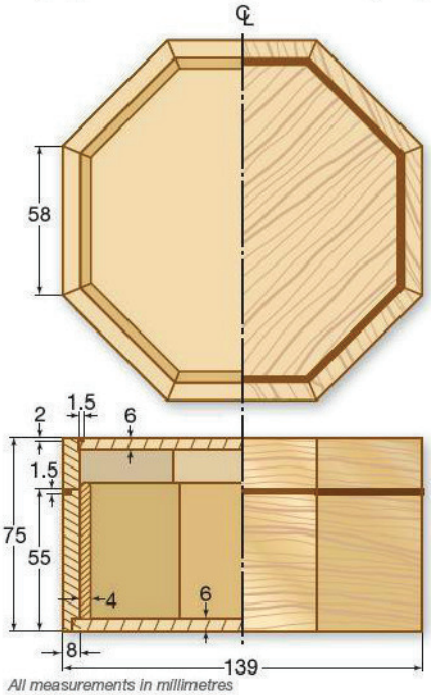


5 Use a protractor to divide the base into eight equal segments

6 Carefully draw around the inside of the box rebate to mark the base

case, 58mm. Check that the sides are parallel and secure it to the first box side piece using double-sided tape.

Secure the cutter in the router table and set the depth of cut so the cutter will just cut the top of the maple but not the template. Position the fence so it's level with the front face of the bearing, **photo 3**. Using the sliding fence for support, slide the timber across the cutter. Most of the timber has already been removed using the bandsaw, so the cutter is only being used to trim the timber to the correct bevel. Note the use of the timber attachment to the sliding fence to prevent any breakout. The finger guard has been raised for clarity only.



All measurements in millimetres

Trial assembly

Lay all eight pieces face up and in numerical order against a straightedge, and stick them together with masking tape, **photo 4**. Butt each piece tightly against its neighbour as the tape is applied. Now fold the eight parts into an octagon and join the loose ends together.

Take the piece of plywood for the base and use both a square and a small protractor to mark eight segments on it, **photo 5**. Draw these lines clearly and accurately using a sharp pencil. Now take the joined-up box, place this on the base and adjust its position so that each dividing line passes through the join of each segment of the box. When you're satisfied, use a sharp pencil to trace around the inner edge of the rebates to mark the outline of the base onto the plywood, **photo 6**.

Cut this base out carefully to make an accurate octagon. I find the easiest way of doing this is to use a bearing-guided trimmer running against a straightedge held onto the plywood with double-sided tape. Use the base as a template to cut the lid, **photo 7**, again with a bearing-guided trimmer. Put a small pencil reference mark on both the base and the lid so that, on assembly, the lid and base will correlate if the octagon is slightly out on one edge.

Adding the details

Canadian maple is a very pale timber, and to contrast the pale sides with the bird's-eye maple veneer I glued some black stringing into a rebate cut around the perimeter of the lid. This is cut using either a straight cutter with the fence accurately set on the table, or, as I prefer, using a bearing-guided trimmer with a smaller bearing on the end.

When it comes to sanding the veneer smooth with the inlay, there's a tendency for the black dust to smudge into the pale veneer and ruin it. This can be avoided if the veneer is first sealed with a couple of coats of pale polish before the stringing is glued in place. Use pieces of masking tape to hold the stringing in place until the adhesive has set, **photo 8**.

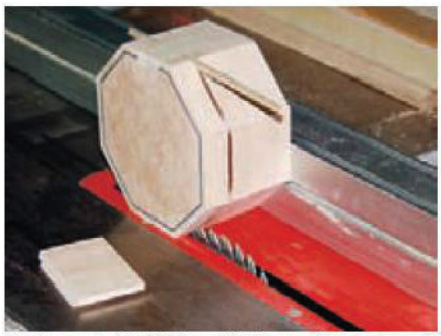
Assembling the box

Unroll the eight sides and apply a little adhesive into the bevels, including the ends.

7 Use the base as a template to make the lid

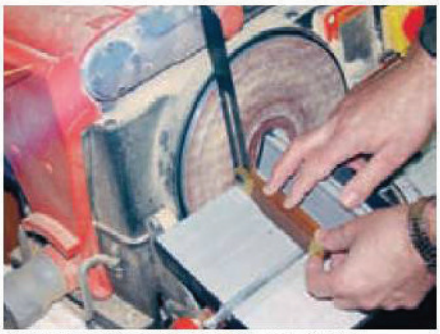
8 Secure the stringing in rebates cut into the lid

9 Glue the eight sides around the base and lid of the box



10 Separate the lid from the box using a table saw. Scrap wood keeps the box square

11 Cut a shallow rebate around the perimeter of the box base for some stringing



12 Set the disc sander table accurately to 22.5° using a sliding bevel

13 Bevel the edges of the lining pieces to fit inside of the box

14 Fit the baize inside the base and replace the eight lining pieces

Apply a small bead of adhesive along both the upper and lower rebates and wrap the sides around the top and base of the box, **photo 9**, securing the two ends with tape. Pull this tight and allow the adhesive to dry.

Splitting the box

This is always a nerve-wracking stage, but if care is taken the job is completed quickly and easily. Personally I set the depth of cut on my table saw to a whisker lower than thickness of the box sides, using an offcut from the assembly stage as a test piece. Secure the fence in place and slide the box against the fence. Then rotate it face by face to repeat the cuts. Fit some scrap timber in place in the top cut to stop the box wobbling as you cut the final sides, **photo 10**.

As can be seen, the guard and riving knife must be removed to allow the box to pass over the revolving blade, and it goes without saying that particular caution should be taken at this stage to keep your fingers away from the blade. If you don't have a table saw, you can cut the box using a router table or a handsaw.

Finally, lay some abrasive paper on a flat surface and smooth the saw cuts by rubbing the lid and base in a circular fashion on the paper. Avoid rubbing backwards and forwards, as this tends to chamfer the edges and the two parts will then not fit together accurately.

Fitting the interior

In a similar fashion to the lid, cut a small rebate along the top outer edge of the base, **photo 11**, and glue some more stringing in place after sealing the maple with polish.

To prevent the lid from sliding off the base, fit the interior with a lining that protrudes from the top of the base by about 5mm. These are cut from a strip of maple planed to 4mm thickness and bevelled slightly along its the top edge.

To cut these eight pieces accurately using the router would be a little tricky, owing to the thinnness of the timber and the size of the cutter. However, a method that works well is to use a disc sander.

Firstly set the bevel to 22·5° using a sliding bevel, **photo 12**, and at the same time check the sliding fence is square to the disc. In a similar method to the cutting the exterior of the box, cut the lining pieces in consecutive order so the grain flows through them.

Cut the first piece to fit and clamp this in place on the inside of the box. Now bevel one end of the next piece, **photo 13**, and butt this against the piece just fitted. Using a marking knife, make a small square mark where the bevel should be for this second piece. Use the sander to bevel the edge to the score line. To stop the wood burning or charring on the sander, slide it across the disc using the fence as a support.

Repeat this process for all eight pieces. The final piece should be a tight fit, **photo 14**, as this holds all the other pieces together in place without the need for adhesive.

Completing the box

Remove the lining pieces and glue a piece of baize to the inside base of the box. This allows the lining pieces to sit over the cut edges of the baize and makes for a neater look.

The finish I used was a clear cellulose-based sealer brushed on with a polishing mop. I allowed it to dry before rubbing it smooth with a fine abrasive pad.

To finish your box, add a small knob on the lid if you wish, and glue some baize to the base of the box.

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WORKSHOP

Your guide to woodworking tools, techniques and equipment

Keith Smith

Keith Smith uses Freud's new door router bit set to make a glazed and panelled door for his new garden room, and is amazed at how it speeds up a traditionally labour-intensive job

He also describes how he restored a 17th century Cromwellian chair that had seen better days, and presents the second part of his feature on testing woodworking adhesives, which contains some very interesting findings

Terry Brown

Terry Brown reckons that old furniture is often good furniture; all it needs is a bit of tender loving care to get it back to full working order. He demonstrates by saving a flap-top side table for posterity

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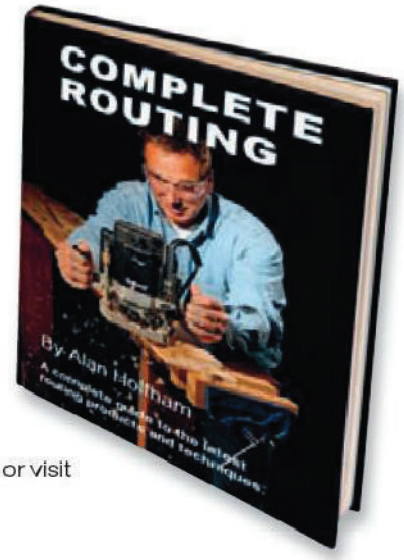
Follow the trend

Trend has just launched a new routing book, Complete Routing, written by popular woodworking author Alan Holtham, and is confident it will become the definitive reference manual for all router users.

Complete Routing is an A4 hardback book, with over 300 pages full of easy-to-follow routing techniques and step-by-step guides on how to use your router to its full potential, and is an essential read for the amateur or the experienced router user. With only a little experience, Alan reckons that you'll soon be using the router to transform both the making and the detailing of all your woodworking projects. But he adds: "Do be warned: routing is a technique that can become seriously addictive!"

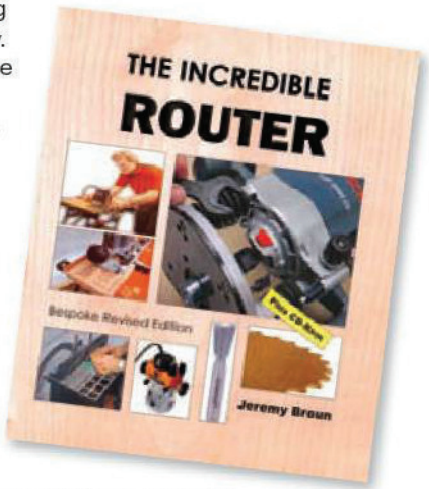


Complete Routing is priced at £19.50 and is available from all Trend stockists. For details, call 0800 487363 or visit the website at www.trend-uk.com

Be incredible

In a parallel universe, creative routing pioneer Jeremy Broun has recently produced a revised edition of his best-selling book, The Incredible Router. This contains updated information on new routers, cutters, holding devices and accessories. It explains the importance of jigs for controlling the path of the cutter and creating professional-quality results, and introduces several inventive jigs designed by the author. It then describes a range of routing techniques, and takes the reader into the realms of designing with the router. Throughout, the emphasis is on using the router safely as well as creatively.

The unique feature of The Incredible Router is that it comes as a package with a CD-Rom. This features videos of routing in action and really brings routing to life. It includes unique projects and jigs designed by the author, allows you to print off plans directly and offers links to a number of useful routing-related websites. You can buy The Incredible Router plus its CD-Rom for £24.95, or order a unique personalised and numbered copy with your name and message printed on the frontispiece for just £29.95 (saving £5 on the recommended retail price). Both prices include postage and packing. To order, call 01689 899200 or visit www.woodomain.com



Garden room door

KEITH SMITH

Keith's new garden room, described in last month's issue, needed a sturdy front door. This was the perfect challenge for Freud's new router bit set

DVD BACKUP

This is the only router set I know of that comes with its own DVD. However, it does need a suitable computer to run it; it won't play on a domestic DVD player.

The DVD goes through the complete process of making a panelled door in step-by-step fashion, and I was intrigued to see if in real life making a door could be so simple. It was!

Until recently, making a full-size panelled door was the preserve of the spindle moulder or the gifted hand craftsman. The cope and stile joints which can be made on a router table and are often seen on kitchen cupboard doors are not even remotely strong enough for an entrance door, as they need good-sized mortise and tenon joints for strength. However, Freud has now produced a router bit set that can cut the mouldings needed for both 35mm and 44mm doors and create suitable tenons in the process.

This router set is extremely flexible in the designs of door it can create, and to test its adaptability I'm going to use it to make a rather different door for my garden office. I'm using 150 x 50mm softwood to produce a 45mm thick door, 890mm wide but only 1830mm tall.

Instructions on paper

Video instruction is all very well, but like most people I can't hold all the information in my head, and by the time I get to the workshop I've usually forgotten the exact sequence of operations I've been watching. So it's fortunate that the set also comes with a comprehensive set of written instructions, **photo 1**.

I'm using timber for the door which is supplied ready planed, **photo 2**. It's vital that all the timber is the same thickness if

1 The comprehensive instructions are written in America and so have imperial measurements

2 The wood I used for the door is inexpensive softwood, supplied ready-planed

3 After cutting the stock to size, I kept some offcuts for use as test pieces

5 Unscrew the top half of the cutter...

6 ...to leave a flat-topped tenoning cutter

7 The tenon passes over the top of the cutter, so any length can be cut

8 The finished result is a very neat 63mm long tenon

4 I routed the stub tenons with the boards held face side down

the joints are to align, so I did a thorough check and had to run a couple of lengths through the thicknesser first.

Following the instructions and with the aid of a calculator, I cut all the pieces to length. I kept some of the off-cuts for use as test pieces, **photo 3**, and marked the best or face side of each board.

Start with the tenons

The first step was to machine stub tenons on the ends of all the rails. The router bit needs to be set absolutely dead centre to the edge of the board, and this is where the off-cuts come in useful as there is some trial and error involved in getting this spot-on. For this task some sort of fine height adjustment on the router is more than useful. Using a mitre gauge to keep the rail square to the cutter, I routed the stub tenons with the face side of each board facing down, **photo 4**.

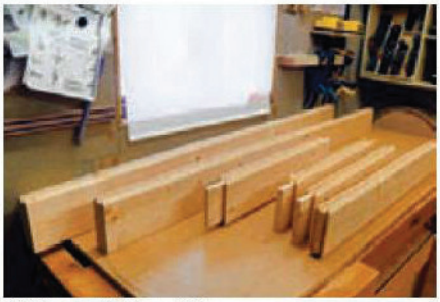
To machine the long tenons, the top half of the router cutter needs to be removed; this simply unscrews, **photo 5**, leaving a flat-topped router cutter, **photo 6**. The tenon can be routed to any depth as it is cut from both sides, with the tenon passing over the top of the cutter, **photo 7**. This is why the cutter needed to be set perfectly central before cutting the stub tenons. The result in this case is a very neat 63mm tenon, **photo 8**.

Stile profiles

The next stage, using the other cutter in the set, is to rout the profile into the stiles. Using one of the previously machined rails, I set the height of the cutter. Then I set the

9 Set the fence so the bearing is aligned with its face

10 With such large pieces of timber, a substantial router table is a must



11 The machining of the door parts is now complete

12 I then haunched the tenons on the top and bottom rails

13 I had to resort to drilling and cutting the mortises by hand

15 I used Titebond 3, but Extramite would have given me a longer open time for the assembly

16 I used a laminate trimmer to remove the moulding from the glazing rebates

fence so that the bearing was aligned with its face, **photo 9**, and machined the stiles using a push block, **photo 10**.

Remember that these are long lengths which must stay absolutely flat and in contact with the table through the machining process. If the board lifts even slightly, the profile will run off-true and the door won't assemble properly, so some sort of work support may be necessary.

If the door is to have glass panels, the final operation with the cutter set is to machine additional lengths of stile to provide the glazing bead.

The machining operation for the door parts is now complete, **photo 11**. All that remains is to haunch the tenons on the top and bottom rails, leaving a stub tenon to mate with the stile profile, **photo 12**.

Cutting mortises

The mortises in the stiles can be marked out directly for length from the tenons on the rails; the width is set, as it's the same as the profile already cut. At this point I discovered that my mortiser didn't have quite enough capacity to cut the mortises, so I cut them by hand after drilling out the bulk of the waste with a Forstner bit, **photo 13**.

It was now time for a spot of dry assembly. Everything went together very well, and the width was exactly right, **photo 14**.

Preparing the panels

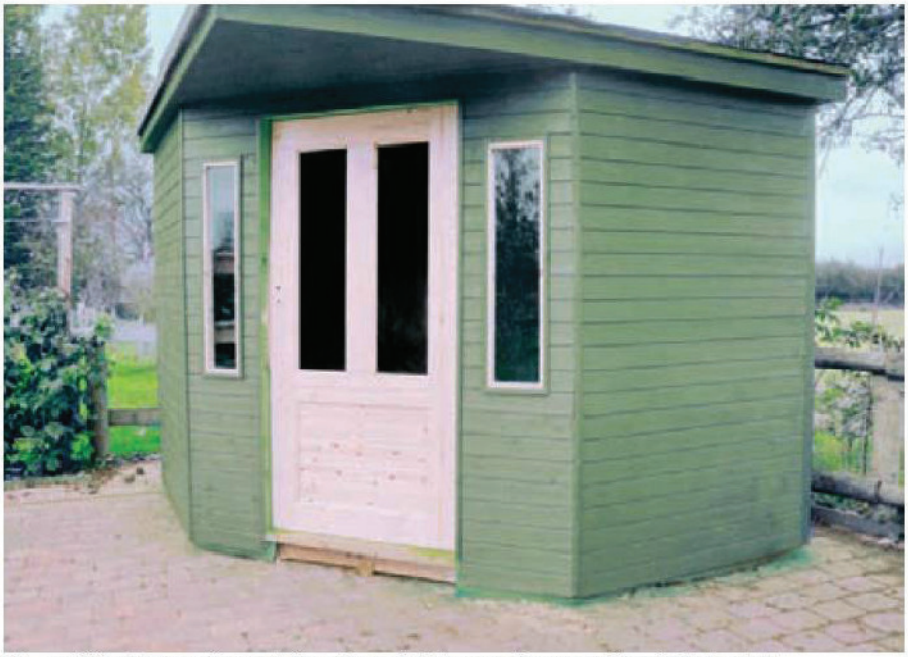
The bottom panel is to be made from matchboard to match the rest of the cladding on the building. As I didn't want to alter the machined profile on the door, I thicknessed the matchboard to fit the groove.

I assembled the door with the bottom panel fitted in place. I used Titebond 3, **photo 15**, but this didn't give me a very long open time and assembly was a bit

14 Dry assembly revealed that the door was spot on for width

17 The trimmer was fitted with a bearing-guided cutter

18 I fitted the lock next , but left the glazing...



19 ...until the door was hung, to keep the weight down as I was working single-handed

rushed; with hindsight, Extramite would have been a better choice.

Once the glue had set, I had to remove the profile from the side of the door from which the glass will be inserted. I used a laminate trimmer, **photo 16**, fitted with a bearing-guided cutter, **photo 17**.

Ready to hang

Once the finished door had the lock fitted, **photo 18**, it was ready for hanging. It's a lot better where possible to hang a door unglazed, **photo 19**; the reduced weight makes handling the door much easier.

That done, all that remained was to add the door stops, glaze the door, paint it to match the building and add the hardware and a weatherboard. I'm very pleased with the results, especially considering it is made from cheap softwood.

Summary

This set is expensive at £189, but I wouldn't have to produce many doors for it to pay for itself. It allows many designs of door to be created, and it's relatively easy to produce a professional product. It's quick too; it took me about two hours to make the door. However, it's not completely foolproof, and I would recommend making up a sample door in softwood before embarking on a design in expensive hardwood. My only other caveat is that, to obtain the best results, the set needs to be used in a substantial router table.

FURTHER INFO

The Freud Exterior and Interior Door Set, part number 99/267, can be ordered through your local Freud dealer or via

Freud Tooling

Tel 0870 770 4275

www.freudtooling.co.uk

Roadshow restoration

TERRY BROWN

If you have an eye for a bargain, it's amazing what you can find at antique and boot fairs. Terry Brown fell in love with this little table, and soon nursed it back to good health

1 This little table cost me the princely sum of £28!

I came across this little table, **photo 1**, hidden in the back of a stable block used to house items for sale during an antiques fair at a stately home in Northamptonshire. It was described as a piano stool by the vendor, but I prefer to think of it as a side table. The top lifts up, **photo 2**, to expose a compartment for books and magazine, but I planned to use it to house the various controllers for our TV, video, DVD player and hi-fi.

I purchased the table (along with a wooden framed mirror) for £40, as pieces to restore for my own use. I'm under no illusions as to the table's status within the antiques world, but I liked the look of it and that's the only reason I loaded my prizes into the car boot and went home happy.

First Impressions

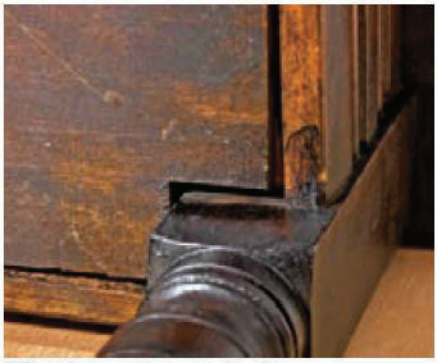
The mirror required little work apart from a good clean, and is now my new hall mirror. However, the table was another matter. Once it had been in my heated workshop for a few days awaiting attention, it became apparent that it had been stored in less than ideal conditions by the previous owner. All the joints had shrunk and the whole thing was being held together by the nails pinning the tenons into the mortises.

Problems aplenty

The ply base to the box was held in a rebate with some fearful looking roofing felt nails, and on the whole did not fit well, **photo 3**. The stretcher bar was very loose, but fortunately the nails in this joint stood proud of the rails, **photo 4**.

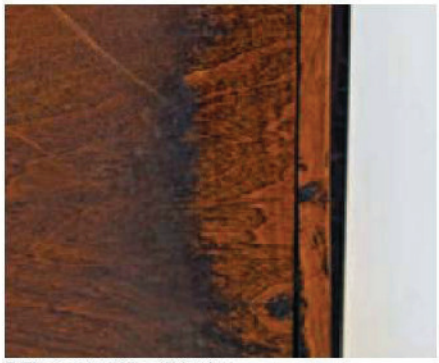
I was pleased to see the signs of handling under the box base, where fingers had left their mark in the dirt, **photo 5**. The top rails were mortised and pinned into the legs, and I wasn't so pleased to find these nails were well countersunk. It wouldn't be possible to remove these to work on the joints, **photo 6**, without causing severe damage to the surrounding wood.

2 Despite its appearance it seemed well worth saving



3 The plywood base was badly nailed on and a very poor fit

4 The stretcher bar was loose and also secured with nails



5 The underside of the box revealed years of handling

6 The main joints all needed some care and attention

7 I started to prise the repair nails out of the stretcher bar...

8 ...only to find that they were a little overlong for the job

9 I pulled out all the nails holding the base panel in place

10 Once I'd removed all the original hardware, I stored it safely

11 The Chair Doctor kit includes a syringe and three sizes of needle

12 I filled the syringe with the glue and injected it into the joints

13 With the joints glued, I cramped up the table frame and left it to set...

14 ...ready for a final application of wax polish and a thorough buffing

Stripping back

I first pulled out the pins from the stretcher bar, **photo 7**, and they just kept coming – something of an overkill in the repair department, to say the least, **photo 8**. I then removed the ply base, using a cloth to protect the wood from damage by the pliers as I removed all the old nails, **photo 9**.

Next, I unscrewed the box lid and marked the hinges and the frame so that I could be sure to put everything back in the correct place. I put the hardware into a little tray I keep just for this job, **photo 10**.

The Chair Doctor

As I couldn't gain access to the rail joints in a conventional way, I resorted to using a product called Veritas Chair Doctor. When it is injected into a small hole drilled into the joints, it swells the wood and sets solid, thus securing the joint. I know this isn't the way to treat fine furniture, but this was the least damaging way forward for an item of this quality.

The Chair Doctor kit includes a syringe, **photo 11**, with three sizes of blunt needle with which to inject the product. Once I'd drilled a small hole through the back of the legs and into the tenons, I filled the syringe with the glue and injected it into the joint, **photo 12**. I then clamped up the table and left it to dry overnight, **photo 13**.

A previous rescue

I took a shine to this product after recently repairing a whole pub-full of chairs and tables that had become very wobbly after years of damage done by customers leaning back on the chairs and dragging the tables across the room, all of which had caused various joints to fail.

The Chair Doctor treatment not only restored the furniture to a solid and serviceable state. It also saved the owner a vast amount of money compared to buying new, even after he'd made a very generous donation to our local hospice.

Cleaning up

Back to the table! It had obviously been in a room with an open fire, and needed a thorough cleaning to remove years of old polish and dirt. However, I wanted to keep the signs of handling shown on the underside of the table, so I left this area untouched. I used No Nonsense furniture cleaner from Screwfix to bring the rest of the table back to the point where it could be refinished, whilst retaining signs of its previous life in the various dings, surface dents and patina.

Wax and polish

Once the table was looking reasonably clean, I treated the top, frame and legs to a thorough waxing and polishing, **photo 14**. I then replaced the box base, using brass screws instead of nails to hold it in place, and reattached the top.

I'm now the proud owner of a useful and sturdy side table. After a little effort and not much money spent, it should serve me well.

FURTHER INFO

Veritas Chair Doctor Pro Kit
(cat no 510451: £7.05)
Axminster
0800 371822
www.axminster.co.uk

No Nonsense furniture cleaner
(cat no 11605: £2.99)
Screwfix
0500 414141
www.screwfix.com

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- Tables tilt 0-45° left and right
- Depth gauge • Chuck guards

MODEL	WATTS/ SPEEDS	EX VAT	INC VAT
CDP5DD	250/5	£33.99	£39.94
CDP10B	245/5	£49.98	£58.73
CDP15B	300/5	£79.98	£93.98
CDP-10B	370/12	£89.98	£105.73
CDP20B	370/12	£99.98	£117.48
CDP-15F	370/12	£109.98	£129.23
CDP30B	510/12	£134.99	£158.61
CDP35F	510/12	£149.98	£176.23
CDP401B*	510/16	£159.98	£187.98
CDP451F*	510/16	£189.98	£223.23
CDP501F*	980/12	£379.98	£446.48

B=Bench mounted F=Floor standing

* Includes wet 'T' slot table & worklight

FROM ONLY £33.99 EX-VAT £39.94 INC-VAT

Clarke TABLE SAWS

Includes left & right table extension

FROM ONLY £39.99 EX-VAT £46.99 INC-VAT

CTS10D

Features TCT Blade

MODEL	MOTOR	BLADE	EX VAT	INC VAT
CTS800B	600w	200mm	£39.98	£46.98
CTS10D	1500w	254mm	£99.98	£117.48

Clarke WORKBENCH

ONLY £59.99 EX-VAT £70.49 INC-VAT

CWB1250

- Robust wood workbench
- Extra thick, reversible plywood faced worktop • Large lockable cabinet with storage shelves • Tough steel drawer

Clarke ROUTERS

FROM ONLY £54.99 EX-VAT £64.61 INC-VAT

BOSCH Power Tools freud * DIY # PRO

MODEL	MOTOR (W)	PLUNGE (MM)	EX VAT	INC VAT
Bosch* POF1100AE‡	1100	0-55	£54.99	£64.61
Clarke CR2#	2100	0-60	£79.98	£93.98
Ryobi ERT2100#	2100	0-60	£109.98	£129.23
Freud FT220VCEK#	1900	0-67	£179.98	£211.48

REDUCED

‡ Was £70.48 Inc.VAT

RYOBI ROUTER AND TABLE KIT

ERT-1150VN ROUTER

- 1150w, 230v • 1400-31500rpm
- Plunge depth 60mm
- 8 assorted cutters.

ART-03 ROUTER TABLE

- Dims. With extensions 355x1010mm • Die-cast aluminium table and rear fence.
- Mitre gauge

ONLY £99.99 EX-VAT £117.99 INC-VAT

NEW

Clarke BISCUIT JOINTERS

freud

- Best on Test - Good Woodworking Magazine

* DIY # PRO

FROM ONLY £34.99 EX-VAT £41.11 INC-VAT

MODEL	POWER	CUT DEPTH	EX VAT	INC VAT
Clarke BJ300*	860w	12mm	£34.99	£41.11
Clarke BJ600#	600w	16mm	£49.98	£58.73
FREUD JS102#	500w	20mm	£109.98	£129.23

scheppach DECOFLEX SCROLL SAW

ONLY £99.99 EX-VAT £117.49 INC-VAT

- 90w motor
- 400-1600 speed
- Throat size: 405mm
- Table tilts 0-45°
- Flexidrive system allowing additional cutting, grinding & polishing from one unit.
- Includes Work light

Clarke WOODWORKING LATHES

FROM ONLY £64.99 EX-VAT £76.36 INC-VAT

SEE CATALOGUE FOR ACCESSORIES

MODEL	CENTRE TO CENTRE (MM)	TURNING CAP.	TURNING SPEEDS	EX VAT	INC VAT
CWL6B	508	242mm	4	£64.99	£76.36
CWL12D	940	305mm	5	£89.98	£105.73

RYOBI DEWALT BOSCH CORDLESS DRILL /DRIVERS

FROM ONLY £54.99 EX-VAT £64.61 INC-VAT

- Small compact size
- Power work light

MODEL	VOLTS	BATTS	EX VAT	INC VAT
Bosch PSR18‡	18v	1	£54.99	£64.61
Ryobi CMD1442	14.4v	3	£79.98	£93.98
DeWalt DC756KA	12v	2	£129.98	£152.73

REDUCED

‡ Was £70.48 Inc.VAT

Clarke BANDSAW WITH SANDING DISC

ONLY £199.99 EX-VAT £233.99 INC-VAT

CBS355

- Ideal machine for fast and accurate cutting in both hard and softwood • Fitted with 155mm diameter abrasive disc • 375watts motor
- Cutting depth 145mm, throat depth 360mm

Clarke ROUTER TABLE

- Converts your router into a stationary router table
- Suitable for most routers (up to 155mm dia. Base plate)

CRT-1

ONLY £35.99 EX-VAT £42.29 INC-VAT

Router not included

Clarke SCROLL SAW

CSS16V

FROM ONLY £34.99 EX-VAT £41.11 INC-VAT

- 120w, 230v motor
- 50mm max cut thickness • 400 - 1,700rpm variable speed • Air-blower removes dust from cutting area

MODEL	MOTOR	SPEED RPM	EX VAT	INC VAT
CSS400B	85w	1450	£34.99	£41.11
CSS16V	120w	400-1700	£59.98	£70.48

Clarke WOODWORKING LATHE

CWL20RV

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ONLY £169.99 EX-VAT £199.79 INC-VAT

- 10 Speed reversible head lathe
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Clarke NAIL/STAPLER AIR COMPRESSOR KIT

- 1.25Hp with pressure regulator
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- Ideal for decking, flooring and panelling etc.
- Includes starter pack of nails and staples

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Includes 2" nail/staple gun

Clarke CDS-300 DISC SANDER

ONLY £79.99 EX-VAT £93.99 INC-VAT

- Fine finishing, accurate sanding & shaping. • 750w input power • Disc Dia. 305mm • 45° tilting table • Dust extraction facility

Clarke CIRCULAR SAWS

SKIL Makita

FROM ONLY £26.99 EX-VAT £31.71 INC-VAT

MODEL	DUTY	MOTOR	EX VAT	INC VAT
Clarke CCS1	DIY	1200W	£26.99	£31.71
Clarke CCS2	PRO	1300W	£49.98	£58.73
Skil Classic	PRO	1600w	£79.98	£93.98
Makita 5704RK	PRO	1200W	£75.99	£89.29

Clarke BELT SANDERS

Makita BOSCH Power Tools

- All models complete with dust bag

FROM ONLY £24.99 EX-VAT £29.38 INC-VAT

MODEL	WATT	M/MIN	EX VAT	INC VAT
Clarke BS1	900w	380	£24.99	£29.36
Bosch PBS7A	600w	250	£49.98	£58.73
Makita 9911	650w	75-270	£84.99	£99.86

Clarke AIRLESS SPRAY GUN

EARLEX

FROM ONLY £12.99 EX-VAT £15.26 INC-VAT

- Ideal for fast easy paint spraying on fences, sheds, garden ornaments etc.

MODEL	DELIVERY	WATTS	EX VAT	INC VAT
Clarke CAS45	200g/min	45w	£12.99	£15.26
W140P	220g/min	100w	£29.98	£35.23
W180P	270g/min	120w	£39.98	£46.98

scheppach VARIABLE SPEED 12" BANDSAW

- Adjustable cutting speed from 370-750M/min • Top & bottom 3 roller precision guides
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- Tilts from -17° to +45°

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CHT136

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Clarke UNIVERSAL MITRE SAW STAND

- Heavy duty, durable universal bench with excellent stability up to 125kg
- Suitable for most saws
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- Dims LxWxH 116x608x614mm

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Extension Arms adjust up to 1899mm for longer work pieces

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- Rollers fitted with ball bearings for easy action
- Large non-slip feet for stability
- Heavy duty

Fast easy swivel head

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CBS3

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12 Piece Set

Quality Beech Handles

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- 1500w motor
- No-Load speed: 4500rpm
- Cutting cap. 80mm at 90° 55mm at 45°
- Table size: 1100mm x 638mm
- 3 Channels for mitre gauge

Clarke ALUMINIUM SASH CRAMPS

- Quick release lever for fast & easy use

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MODEL	SIZE	EX VAT	INC VAT
CHT374	600mm	£6.99	£7.04
CHT375	900mm	£6.99	£8.21
CHT376	1200mm	£7.99	£9.39

DEWALT PRO RADIAL ARM SAWS

- Input power from 1450-4000w
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MODEL	POWER (W)	BLADE/ BORE DIA.	MAX DEPTH CUT AT 90°	EX VAT	INC VAT
DW720K	1450	250/30	68mm	£639.98	£751.98
DW721K	2000	300/30	90mm	£999.00	£1173.83
DW728K	2200	350/30	110mm	£1595.00	£1874.13
DW729K	4000	350/30	110mm	£1595.00	£1874.13

Clarke VARIABLE SPEED 12" BANDSAW

CBS12WV

- Max cutting depth 80mm
- Powerful 500w motor
- Dims: LxWxH 860/600/1680mm
- Blade speed 200-600m/min

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CS4-6C

- Dust extraction facility
- 4" x 36" belt tilts & locks 0-90°
- 220mm x 155mm table, tilts 0-90°
- 440w, 230v motor

CS4-6C

6" BELT/9" DISC SANDER

CS6-9C

- Includes stand
- 1 Hp/230v/1 ph motor

ONLY £149.98 exc. VAT £176.23 inc. VAT

CS6-9C

Clarke BANDSAWS

See catalogue or website for EVEN MORE Bandsaws

scheppach DEWALT

FROM ONLY £69.99 EX-VAT £82.23 INC-VAT

CBS250

MODEL	MOUNT	MOTOR	THROAT	EX VAT	INC VAT
Clarke CBS190	Bench	350w	190mm	£69.98	£82.23
Clarke CBS250	Floor	370w	245mm	£119.98	£140.98
Scheppach	Bench	300w	195mm	£129.98	£152.73
Basato 1#					
DeWalt DW738	Bench	749w	155mm	£199.98	£234.98

REDUCED

Includes Stand

REDUCED was £176.23 Inc.VAT

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CPT600

- Ideal for DIY & Hobby use • Dual purpose, for both finishing & sizing of timber

*Max planing width 152mm

MODEL	MOTOR	MAX THICK. CAPACITY	EX VAT	WAS INC VAT	INC VAT
CP-6	1100w	*	£89.98	£117.48	£105.73
CPT600	1250w	120mm	£139.98	£176.23	£164.48
CPT800	1250w	120mm	£169.98	£234.98	£199.73

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COMPOUND MITRE SAWS

Makita Clarke

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- All saws feature TCT blade

MODEL	BLADE (MM)	CUT DEPTH	EX VAT	INC VAT	
Clarke CMS251	250	70mm	£59.98	£70.48	REDUCED
Makita LS1040	255	90.5mm	£151.99	£178.59	

‡ Was £183.88 Inc.VAT

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MODEL	MAX LOAD	TYPE	EX VAT	INC VAT
CSB2	100kg	Individual	£9.98	£11.73
CSB1	100kg	Pair	£16.99	£19.96

Clarke HARDWOOD WORKBENCH

- Includes guide holes and bench dogs
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- Simple boltless slot & pin locking mechanism
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- Strong 9mm fibreboard shelves
- Quick assembly unit

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MODEL	SHELF DIM(WDH)	CAPACITY	EX VAT	INC VAT
CS5150	800x300x1500mm	150kg	£25.99	£30.54
CS5350	1800x400x900mm	350kg	£44.99	£52.86

Clarke DUST EXTRACTOR/ CHIP COLLECTOR

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- 315mm x 48 TCT blade diameter
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BOSCH Makita DeWALT

FROM ONLY £15.99 EX-VAT £18.79 INC VAT

MODEL	INPUT POWER	NO LOAD SPEED	EX VAT	INC VAT
Clarke CEP1	650w	15000rpm	£15.99	£18.79
Bosch PH020-82	680w	19500rpm	£44.99	£52.86
Makita 1902	550w	16000rpm	£74.99	£88.11
DeWalt D26500K-GB	1050w	13500rpm	£169.98	£199.73

Clarke ORBITAL SANDERS

RYOBI BOSCH Makita

FROM ONLY £16.99 EX-VAT £19.96 INC VAT

BO4553

- Includes pack of 6 sanding sheets

*Professional #DIY

MODEL	POWER (W)	NO LOAD SPEED	EX VAT	INC VAT
Clarke CROS1#	420	4000-11000	£16.99	£19.96
Ryobi ERO-2412V*	240	7000-12000	£34.99	£41.11
Makita BO4553	160	14000	£44.99	£52.86
Bosch PEX400#	400	9000-26000	£49.98	£58.73

Clarke STAPLER NAILER

TACWISE

FROM ONLY £18.99 EX-VAT £22.31 INC VAT

* DIY # PRO

MODEL	INPUT POWER	STAPLE SIZES	NAIL SIZE	EX VAT	INC VAT
Clarke CESG4*	750w	10-14	8-16	£18.99	£22.31
Tacwise 181EL#	1560w	-	10-35	£33.99	£39.94
Tacwise 400EL#	1500w	-	20-40	£64.99	£76.36
Tacwise 500EL#	1200w	-	20-50	£84.99	£99.86

Clarke ROTARY TOOL KIT

CRT40 ONLY £24.99 EX-VAT £29.36 INC VAT

Kit includes:

- Height adjustable stand with clamp
- Rotary tool
- 1m flexible drive
- 40x accessories/consumables

Clarke JIGSAWS

DEWALT BLACK & DECKER RYOBI Makita

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#DIY *Professional

MODEL	POWER (W)	NO LOAD SPEED (strokes/min)	DEPTH OF CUT (wood/steel)	EX VAT	INC VAT	
ClarkeCJS2#	420	0-2700	55	£9.98	£11.73	REDUCED
B&D KS400E#	450	80-3100	55	£22.99	£27.01	
Ryobi EJS 600QEO*	600	600-2600	75/8	£42.99	£50.51	
Makita 4340FCT*	720	800-2800	135/10	£97.99	£115.14	
DeWalt DW331K*‡	701	0-3100	130/10	£129.98	£152.73	

‡ Was £158.61 Inc.VAT

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ONLY £139.99 EX-VAT £164.48 INC VAT

- Motor 1600w
- Speed 2950rpm
- Blade/bore dia. 315/30mm

CCS12 INCLUDES

- 795 X 400mm Extension Table
- Extension Table can be fitted on the side for crosscutting or rear (as shown) for rip cutting
- Wheeled Stand

Clarke PORTABLE THICKNESSER

- Max thickness capacity 130mm
- Planing depths adjustable from 0-2.5mm
- Powerful 1250w motor
- 8000rpm no-load speed

CPT250 ONLY £139.99 EX-VAT £164.48 INC VAT

MODEL	MOTOR	MAX THICK. CAP	EX VAT	INC VAT
Woodstor PT85	1250w	120mm	£169.98	£199.73
DeWalt DW733	1800w	152mm	£319.00	£374.83

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WM536

MODEL	CAPACITY	EX VAT	INC VAT
Clarke CFB700	100kg	£15.99	£18.79
B&D WM536	160kg	£49.98	£58.73

Clarke CERAMIC HEATER

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CBG6W features 8" whetstone & 6"drystone.

MODEL	DUTY	WHEEL DIA.	EX VAT	INC VAT
CBG6RP	DIY	150mm	£13.99	£16.44
CBG6RZ	PRO	150mm	£19.99	£23.49
CBG6RSC	HD	150mm	£24.99	£29.36
CBG6RWC*	HD	150mm	£29.98	£35.23
CBG8RSC	HD	200mm	£34.99	£41.11
CBG8W (wet)	HD	150/200mm	£33.99	£39.94

* with wire wheel

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- 240w
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- Belt speed 15.5M/s
- Complete with tool rest, eye shield & wheel guard

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BS50

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SLIDING COMPOUND MITRE SAW

WOODSTOR RYOBI SL10D

- Dual sliding rails
- 254mm diameter blade
- 1800w motor

FROM ONLY £99.99 EX-VAT £117.48 INC VAT

*with free table saw

MODEL	MOTOR	DIA. BLADE	EX VAT	INC VAT
Woodstor SL10d	1800w	254mm	£99.98	£117.48
Ryobi EMS2026SCL laser*	2000w	254mm	£179.98	£211.48

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A great save!

KEITH SMITH

Old chairs are often built far more solidly than modern pieces, and a little careful restoration can give them a whole new lease of life. Keith Smith explains

I'm not a professional furniture restorer, and I normally renovate only furniture with relatively little intrinsic value; it's so easy to restore a priceless piece and to lose most of its value in the process. However, when I was given this chair to repair, the circumstances were such that I couldn't refuse… but I'll spare you the details!

No frills

This type of oak chair is commonly known as a Cromwellian chair, as it was made during the Puritan period of the mid-17th century. At this time any kind of decoration was frowned upon, and the only details onthis piece are the simple turning on the front rail and legs and the studding to the leather seat and back.

At first glance the chair didn't look in too bad a condition. I stripped off the old leatherette seat cover to reveal the upholstery. I could see that the chair had originally been stuffed with seaweed, **photo 1**, which helped to confirm that it was definitely a 17th century original. Sometimes it can be difficult to tell if Cromwellian chairs are genuine, as this type of period chair has been (and still is) widely copied.

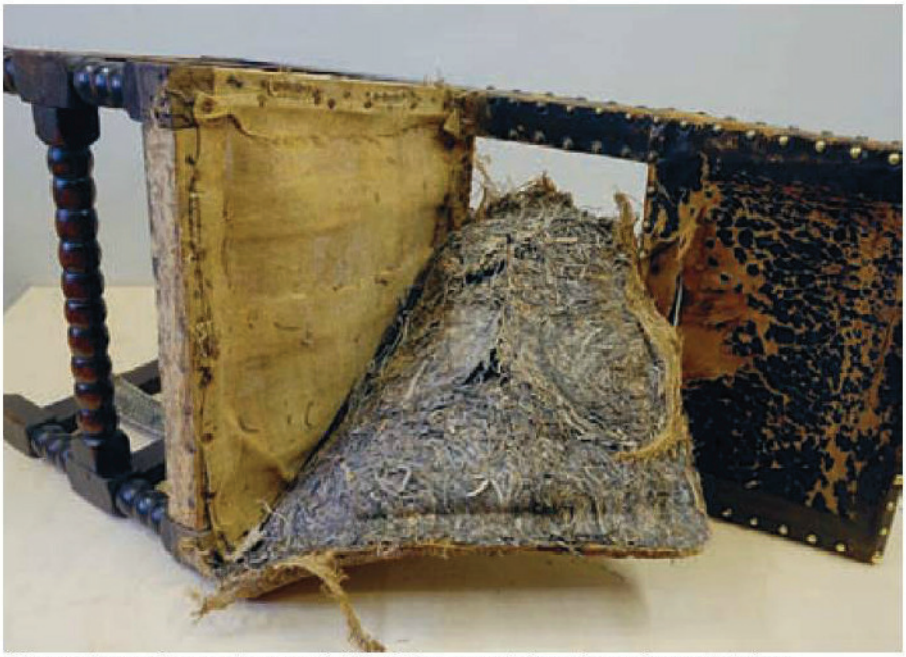
Health check

With the upholstery removed, I could see that the chair was in worse condition than I had hoped. It had had two metal brackets fitted to support the back legs, but these had long since snapped. It had a more substantial bracket reinforcing the seat, **photo 2**, where the tenon had completely broken off. This had obviously happened a long time ago, as there was also a large hand-made nail driven through the rail into the leg, **photo 3**.

Undoing the past

I realised I had to completely disassemble the chair, but this was made frustratingly difficult because at some point oval nails had been driven through all the tenons. This was a big mistake, as it locked each tenon in place but did nothing to actually support the joint. Worse still, the nails had corroded into the oak, which made them impossible to remove.

With some joints I had to cut the tenon



1 Seaweed was often used as an upholstery filling, a good sign of a genuine period piece

2 This substantial bracket had been clumsily attached to support a broken corner joint

3 This joint had been repaired years ago by driving in a large hand-made nail

4 I couldn't remove this nail, and had to cut it flush with the sides of the mortise

5 Several of the tenons has been seriously eaten away by woodworm

6 A white pencil is handy to mark out the positions of the new joints to be cut

WOODWORM DAMAGE

I had a couple of rails which had been badly affected with woodworm. I didn't want to replace them, but they had too many worm holes round the joint area to take PVA adhesive, as the glue would be drawn out of the joint. So I semi-saturated the area with epoxy adhesive, being careful not to apply so much that it stained the external face of the timber, and let it soak in. I then mixed 8 per cent colloidal silica in with the remaining adhesive to thicken it, and used that to glue in the tenon. I realise PVA and epoxy are not exactly traditional materials, but these are repairs to the chair's hidden parts. When I come to reassemble the chair I'm going to use hide glue, albeit the modern liquid version from Titebond.

Allow the epoxy adhesive to soak well in

Mix in colloidal silica to thicken the adhesive

7 I had to cut some joints with a hacksaw to cope with all the deeply embedded upholstery tacks

8 I carefully chopped out the waste wood with a sharp chisel...

9 ...ready for the insertion of a new loose tenon

10 Clamping across the glued joint stops it from splitting apart

11 I laid out and checked all the parts out prior to reassembly...

12 ...and cleaned off any remaining old glue with a stiff wire brush

13 I assembled and cramped up the components for the front frame first...

off, and then chisel the remains out of the mortise. Even then I couldn't always remove the nail, and with one joint I ended up cutting it off flush with the sides of the mortise **photo 4**. I also found some evidence of woodworm damage, as visible on this tenon, **photo 5**.

Tenon repairs

Once the chair frame was completely disassembled, I could begin the repair work. For a start, there were seven tenons which needed replacing, I used a mortise gauge to mark out the angled housings and then highlighted them with a white pencil, **photo 6**. I was able to cut most of these with a tenon saw, but some of the rails had so many bits of upholstery tacks embedded in the wood that I had to cut them with a hacksaw, **photo 7**.

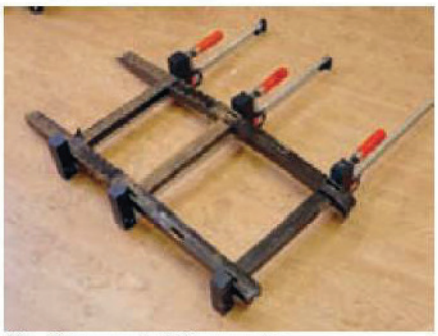
I removed the waste with a sharp chisel, leaving a clean housing (**photo 8**) into which I fitted a shaped loose tenon (**photo 9**). This was then glued into place with PVA adhesive and supported with a clamp while it set, **photo 10**. I trimmed it to size later.

Rebuilding the frames

I laid out all the parts, **photo 11**, and cleaned any glue residue from the tenons with a stiff wire brush, **photo 12**. I then reassembled the front and back frames (**photos 13 and 14**), pegging the joints with tapered oak dowels.

A useful tip here is to apply a thin coat of shellac to the surface of the wood round the joints before gluing them; then any glue squeeze-out can be easily peeled away afterwards, **photo 15**.

Once the glue had dried, I fitted and glued the side rails to the back frame, **photo 16**. I then fitted the front frame onto that and clamped everything together, with an extra clamp to hold the chair down square to the table, **photo 17**. This made sure that the four legs were square to the ground; after all, I won't be able to trim a leg down if it rocks!



14 ...then repeated the process to assemble the back frame

15 A coat of shellac round the joints before gluing makes clean-up easier

16 Once the frames were set hard, I fitted the side rails to the back

17 I then fitted the front frame to the rails and cramped up the whole assembly

18 I touched in the new wood with a spirit stain and a fine brush

19 The repaired and reassembled frame is ready for reupholstering

I left this assembly overnight for the glue to set, before pegging the remaining tenons with oak dowels – an authentic touch.

Retouching the repairs

The repaired tenons were clearly visible from underneath the chair, as were the new dowels; that was until I stained them to match the finish on the rest of the chair, **photo 18**. The finished chair was lightly polished and waxed to retain the original patina, ready to have its new upholstery fitted, **photo 19**.

Upholstery time

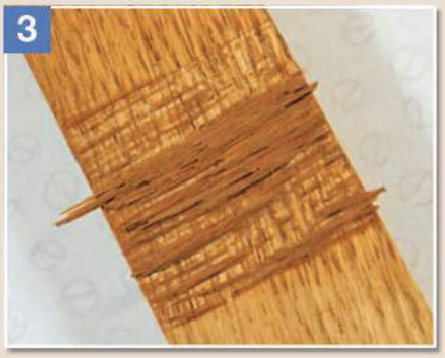
I considered trying to reupholster this chair myself, but seeing the finished result I'm thankful that I left it to the professionals, **photo 20**. Leather is very much thinner these days, and the padding (which is now coir rather than horsehair or seaweed) needs to be carefully stitched in place and covered with hessian for the leather to have a long life. Not a job for the amateur, then!

20 For the best results, leave this job to the professionals

All glued up 2: the tests

KEITH SMITH

Last month Keith Smith looked at glue types and how to make them work well. This month he takes a look at how the different glues perform in the workshop. Here's what he found



HOW THE BIG FIVE PERFORMED

For the first phase of my test I looked at the woodworker's five regular choices for general use – PVA adhesives, the Titebond family and the polyurethanes. The results were quite surprising.

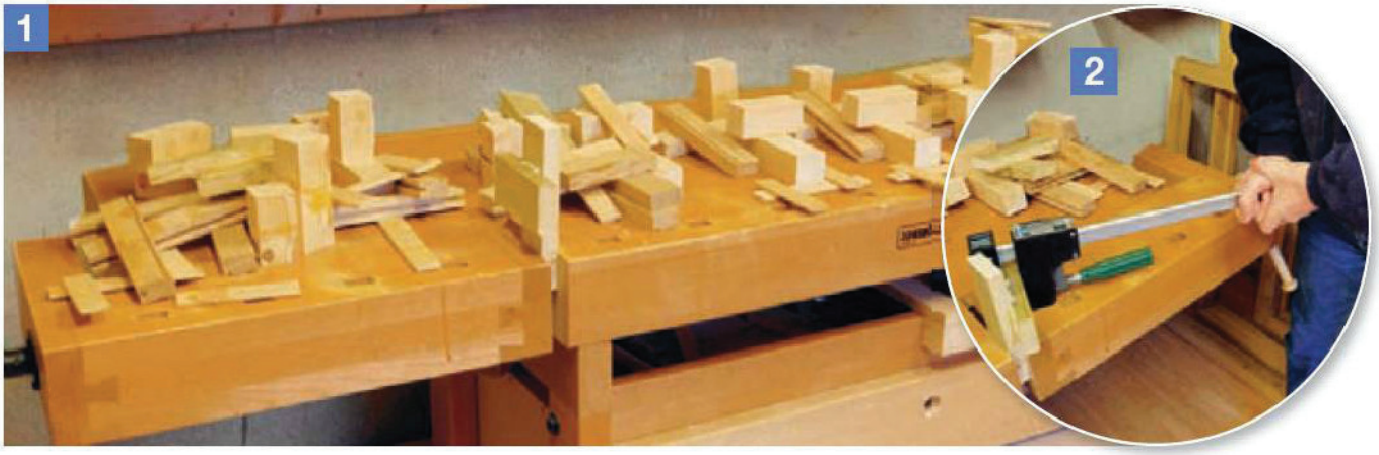
PVA adhesive

PVA is the probably the most commonly used wood glue as it is so cheap, easy and pleasant to use. There are various formulations which offer differing setting times, but the one I use is Evo-Stik Resin W. Formulated for indoor use only, it sets clear, sands well and doesn't damage tool edges. It has a relatively short open time and will set partially within 5-10 minutes, although joints should be clamped for several hours and left for 24 hours to achieve their full strength.

Evo-Stik also make a weatherproof version of this adhesive, which has very similar properties to standard Resin W except that it is water-resistant.

With softwood, standard Resin W gave fantastic results. The wood broke around the joint but the glue bond stayed intact. With hardwood it was less convincing, with typically 50 per cent of the fibres adhered, **photo 3**. The endgrain joint was surprisingly hard to break, but when it did go it broke cleanly through the glue line.

Oddly, weatherproof Resin W gave the opposite results. All the hardwood joints remained intact, with the wood snapping before the joint failed, **photo 4**, yet with softwood the joints failed through the glue line, **photo 5**. The endgrain joint performed the same as standard Resin W.



This isn't an A-Z of all available glues; mostly it's the glues I had in stock, plus a few more interesting adhesives I bought in from Axminster Power tools. There are so many makes of each type of glue that it isn't practical for me to try them all. Even so, I've spent a whole week mixing and using various glues.

Aiming for consistency

In order to compare their relative qualities, I made a large number of sample joints, **photo 1**. I took the simplest approach possible and made lap joints which I then pulled apart, **photo 2**, to see to what extent the glue line failed. As this approach doesn't rely on making dozens of perfectly identical joints, it should be a fairly consistent approach to testing the glue.

However, the trouble with testing wood joints is that wood itself is hardly constant in its properties, and there has been quite a bit of variation with the results. In reality, I would need to make hundreds of joints with each glue to produce definitive test results, which is obviously not a practical proposition. Perhaps in the future we'll organise a more detailed test, with readers getting involved in the process through our GetWoodworking.com website. However one thing that has come out very clearly is that with all the adhesives, good practice is vital to get a good bond.

A variety of joints

I made about a dozen joints with each type of glue, using hardwood and softwood. In addition, for some of the water-resistant glues I made joints using tanalised timber. I also made some end-to-end butt joints using 50mm square PAR softwood. Straight butted endgrain joints are a real challenge for any glue, and should be avoided at all costs; this is because the capillaries in the wood draw the glue out of the joint and dramatically weaken the bond. However, I thought it would be a useful exercise to demonstrate the differences between the glues.

Preparing samples

For my tests I used PAR softwood which I bought in specifically to try to get some consistency, and oak which I machined up from some flooring I had left over. Before gluing up the joints I took a shaving off each face and abraded the surface with 100 grit sandpaper.

The actual test was done last autumn with a workshop temperature of about 20°C. The joints were left for two weeks to ensure the glue had completely cured before I pulled them apart. For the endgrain joints I applied a good quantity of glue to both ends, which I left to soak in for a few minutes before applying more glue and clamping the joint.

Titebond Original

This is an aliphatic resin glue, often referred to as yellow glue. The added resins give it a stronger initial tack than a standard PVA adhesive. With its slightly yellow hue, it doesn't dry to quite as clear a finish as a PVA, but it's very similar to use.

I expected this to work better than standard PVA, but the results were rather disappointing. All the joints I made failed through the glue line, with typically about 25 per cent of the fibres adhering, **photo 6**.

Titebond 2

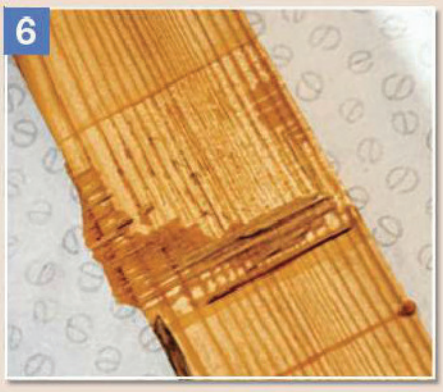
This is a water-resistant aliphatic resin glue, technically known as a cross-linking PVA, which cures through chemical reaction rather than evaporation. This glue has been approved for indirect food contact, so can beused for items such as chopping boards. It dries to a light orangey tan colour.

This glue performed almost identically to weather-resistant Resin W, with the softwood joints failing through the glue line, **photo 7**, whereas the wood around the hardwood joints snapped before the joint failed. The endgrain joint snapped relatively easily through the glue line.

Titebond 3

Like Titebond 2 this is another cross-linking PVA glue. However I understand this is a substantially different formulation to Titebond 1 or 2. It has a thinner consistency and a longer open time, and dries to a dark tan colour. It's marketed as an all-round waterproof glue, but it mustn't be used if the joint is to be continually submerged, nor should it be used for structural applications It has also been approved for indirect food contact.

Titebond 3 gave good consistent results with both softwood and hardwood; the wood fibres broke apart either side of the glue line on every joint I tried, **photo 8** (overleaf). Even the endgrain joint was reasonably strong and split the wood rather than breaking cleanly, **photo 9**. The joint I made in tanalised timber fared equally well, with the wood shattering around the joint.



Polyurethane

I've tested two polyurethane glues: the well-known Gorilla Glue, and Elch Pro Rapid Set polyurethane adhesive from Henkel. Although the Elch Pro is marketed as a rapid-set adhesive, it has a longer open time (30 minutes) than the Gorilla glue (15 minutes). There are some very fast-setting polyurethanes available which set in just a few minutes – for instance, Wudcare Fast Grab – just as there are some that take over an hour, such as Regular Balcotan 100.

Polyurethane is far less pleasant to use than PVA/aliphatic resin glues. It is an irritant that's harmful to inhale. It has a strong solvent odour and marks the skin indelibly, making the use of gloves essential. The fact that it foams out of the joints makes things worse, as the glue seems to get everywhere. That said, it is relatively easy to clean up from the timber if it is pared away just as it starts to cure.

I've seen polyurethane glue being recommended because of its gap-filling properties, so to test how well it would

THE BEST OF THE REST

All the remaining glues I tested need mixing before use. This is a distinct disadvantage, as it's nearly always necessary to mix more glue than is needed and this then goes to waste. What's more, it's difficult to mix small quantities accurately if only a small amount of glue is needed. However, the many practical benefits of these various resin glues more than outweigh this minor inconvenience.

Polymite

This adhesive was originally called Cascamite, and many people still refer to it by this name. Changing the name from Cascamite was no bad thing, as the name implied that the glue was casein-based (derived from milk solids, which it once was), whereas the glue is actually a urea-formaldehyde adhesive.

Polymite comes in powder form and is mixed with water before use. It's important to mix it accurately according to the instructions, as using too much water will reduce the strength of the glue. This is because it allows the glue to be absorbed into the timber, drawing it away from the glue line. Although this is a water-resistant glue, it shouldn't be permanently immersed in water or the resin will eventually break down.

Polymite has little odour and is relatively pleasant to use, although it may cause dermatitis with prolonged contact so it is advisable to wear gloves. It dries clear and doesn't creep, so it's a particularly good choice for veneering.

This glue gave really excellent results with hardwood, **photo 13,** but the softwood joints broke through the glue line with about 50 per cent of the fibres still stuck in place. The endgrain joint was surprisingly strong, but when it did eventually break it went cleanly through the glue line.

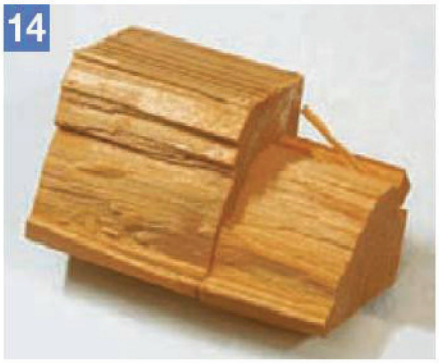
Aerolite 306

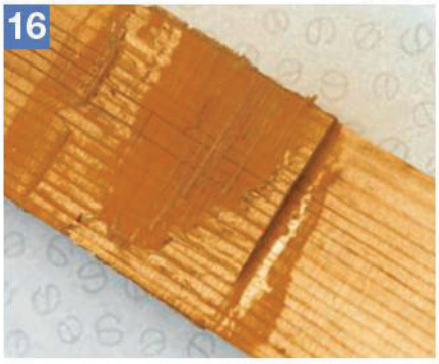
Originally developed just prior to World War 2, this is the adhesive that was used to make the laminated timber frame for the Mosquito bomber. Sixty years later, it is still the most common glue approved for use in wood aircraft building in the UK.

Aerolite 306 is another urea-formaldehyde adhesive, but differs from Polymite in using an acid hardener to cure the glue. This alters the resin chemistry, lengthening the molecules and forming a stronger adhesive. It dries clear, resists water and heat, and will fill gaps of over a millimetre and still form a strong bond. A further advantage with this adhesive is that it doesn't require the joint to be as firmly clamped as some other adhesives to achieve a reliable bond.

The resin mixes up very easily. It has little odour, but can cause skin irritation and like all powders should not be inhaled. The acid catalyst is corrosive and has a very strong odour, so gloves, eye protection and good ventilation in the workshop are a must.

The powdered resin is mixed with water, normally in the ratio 2:1 by





perform in a loose-fitting situation I clamped my first joint very lightly. When I tested this it snapped incredibly easily through the glue line, leaving a microscopic layer of glue on both faces. It would appear that although it may fill the gap, a thin layer of foamed glue imparts little strength.

For the remainder of the test I applied a strong clamping pressure across the joints, and the results with both softwood and hardwood were then very good, with both glues (Gorilla glue, **photo 10**) and Elch Pro, **photo 11**) performing almost identically throughout. The endgrain joints were strong enough to split the wood before the glue failed, **photo 12**.

COSTS PER 500mg

Resin W	£6.66	
Resin W Waterproof	£7.14	
Titebond original	£5.48	
Titebond 2	£6.54	
Titebond 3	£9.20	
Polymite	£6.18	(1)
Aerolite 306	£12.90	(2)
Polyproof	£17.31	
West system epoxy	£13.01	(3)

NOTES

(1) Polymite is mixed 2:1 with water, so 500mg of Polymite will yield 750mg of adhesive

(2) An approximate figure, mixing ratio can vary

(3) Using the Junior pack: £11.44 with the 1.2kg pack. A 60g pack of colloidal silica costs £6.05

weight, although less water can be used if a thicker adhesive is required. The mixed resin will stay useable for at least a day if it's kept cool and remains uncontaminated with hardener.

To assemble the joint, you coat one surface with resin and the other with hardener, and bring the joint together while the hardener is still moist. Initial tack is very rapid, but the joint must not be moved while it cures, otherwise joint strength will be severely compromised. Cure times are temperature-dependent, ranging from 5 minutes at 30°C to 25 minutes at 15°C. Clamping times range from 1¼ to 3½ hours; however it takes up to 14 days to acquire full strength.

This glue gave the most impressive results of all the glues I tried. Every joint was consistently stronger than the surrounding wood; even the endgrain joint resisted all attempts to break the bond, **photo 14**.

Polyproof

Originally known as Cascophen, it was renamed Extraphen in 1994. Now it is made by the Polyvine group, they've changed its name again, this time to Polyproof. This is perhaps more apt as this is the most 'everything-proof' wood adhesive I know that's readily available to the amateur woodworker.

Polyproof is a resorcinol phenol formaldehyde glue which comes in two parts – resin and hardener. When it's set, the glue has no known solvent; it is totally waterproof and fully proof against mould and fungi. It is also resistant to heat, so it can be used for fire doors. The major downside of this glue (apart from the price; it's the most expensive glue on test) is that it dries to a very dark red-brown colour, which leaves a very dark and noticeable glue line.

Its main uses are for plywood, laminating structural timbers, building boat hulls, assembling garden furniture and gates, and gluing preservative-treated timber. However, a limiting factor for exterior work is that the glue should be allowed to set at normal room temperature (15-25°C); low temperatures will slow the setting time and should be avoided.

Polyproof has a strong, unpleasant odour. The resin gives off a flammable vapour and can cause dermatitis, so it's wise to provide adequate ventilation and to wear gloves when using it. The powder and resin mix easily together, and once mixed the glue remains usable for 3-4 hours. Setting time is temperature-dependent but is roughly 12 hours.

Resorcinol glue is renowned for its poor gap-filling properties, yet it is sometimes used on exterior work when it's impossible to get a really tight-fitting joint. My first joint wasn't clamped; I simply applied glue to both faces and loosely laid one piece of wood on another. Curiously, this joint was incredibly strong; the wood shattered well away from the glue line, **photo 15**, yet the tightly clamped joints didn't fare quite so well, with about 80 per cent hardwood and 60 per cent softwood fibres adhering. The endgrain joint was also very strong; the wood shattered well before the joint failed.

West System Epoxy

Although West System Epoxy is primarily aimed at the boating market (it is approved by Lloyd's Register of Shipping), this adhesive will find many uses onshore. Neat epoxy is usually too

TWO SPECIALIST GLUES

I also tested a couple of specialist glues from Titebond which you may well find of use.

Titebond liquid hide glue is particularly good for making a traditional repair to antique furniture without all the hassle associated with hide glue. Traditionally, hide glue required the use of a heated glue pot, but this adhesive has been formulated for use straight out of the bottle. However, application of gentle heat will melt the glue again. It has a quite specific shelf life (about 12 months), after which the glue will not set. As there is no noticeable change to the appearance, this is one of the few adhesives with a use-by date on the container.

Titebond wood moulding glue is a very thick adhesive formulated for a very fast initial tack, and is designed particularly for gluing mouldings in place. As it's so thick it doesn't run and will fill small gaps. It's non-toxic, and you can clean up squeeze-out with water.

COMPARATIVE SCORES

I've scored the glues on the approximate percentage of wood fibres still adhering once the joint was broken: the higher the score, the stronger the joint.

Adhesive	Softwood	Hardwood	Tanalised
Resin W	100	50	-
Resin W Weatherproof	30	100	-
Titebond 1	30	35	-
Titebond 2	30	100	-
Titebond 3	70	70	100
Gorilla	70	80	-
Elch Pro Rapid Set Poly	60	90	-
Polymite	50	90	40
Polyproof	60	80	40
Aerolite 306	95	100	-
West System Epoxy	50	90	70
West System Epoxy plus filler	70	90	70

thin to work well as a wood adhesive; the advantage with the West System is that it comprises various hardeners and fillers which can be combined with the basic resin to produce a versatile range of woodworking adhesives.

There's a 55-page manual and product catalogue for the West System, which is available on CD-ROM. Although the CD is only £2, I was disappointed that there were no video instructions included and it only contained the pdf manual which is freely available for download from their website at www.wessex-resins.com . So although you do need to read the manual, you don't need to buy the CD.

It's very easy to colour epoxy resin, as the clear resin doesn't affect the final colour. However, although epoxy resin dries clear, adding a filler will change its colour. For instance, the colloidal silica and microfibre fillers are off-white, while the low-density filler is dark brown.

To use the resin as a wood adhesive, you mix resin with one of the four available hardeners (standard, slow, extra slow and extra clear). This makes a very thin, clear liquid which you brush onto both surfaces and allow to soak in.

You then add one of the various fillers to the mixed epoxy. I used colloidal silica filler, which thickens the mix; the makers recommend a consistency something between mayonnaise and peanut butter for general bonding. You then apply the thickened adhesive to one face while the initial priming coat is still tacky, and clamp the joint using enough pressure to create squeeze-out but without forcing all the thickened adhesive from the joint. Cure time is variable and will depend on the temperature and the type of hardener used. As with all these glues I like to keep a sample of the waste adhesive so that I can see exactly when it has set.

Unthickened epoxy is very useful for filling cracks, especially in exterior joinery; it is very searching and will fill and glue the entire crack.

Epoxy has a very strong, unpleasant odour. It also gives off a flammable vapour and the hardener in particular can cause dermatitis, so ventilation and gloves are a necessity.

I'm sure that sometimes epoxy will be used without adding any filler, so I made one set of joints with filler and one without. With hardwood (oak) I got excellent results with both filled and unfilled epoxy. The joints I made with tanalised timber also gave identical results, but the filled epoxy made appreciably stronger joints with softwood where the porosity of the wood has drawn some of the glue out of the joint, **photo 16**. However, it was the endgrain joints which showed this effect the most as I was able to break the unfilled joint by hand; it just snapped cleanly through the glue line. Conversely, the endgrain joint made with filled epoxy was one of the strongest on test. Despite getting similar results with the hardwood joints, I would always recommend using a filler with epoxy despite the small increase in cost, as it removes the risk of a glue-starved joint and increases the gap-filling properties of the adhesive.

WW VERDICT

Wood glues tread a fine line between being thin enough to be absorbed into the surface of the timber and remaining thick enough to avoid starving the joint of glue. I assume this is why there is such a difference between the hardwood/softwood performance of some of the glues, and why this is most noticeable with the water-based glues.

Obviously timber varies enormously in its absorption characteristics, and before starting to glue up a project it may be worth making a few sample lap joints to see how the glue performs. This also allows you to check that the glue has not gone off, which is particularly important when using powdered glues.

For many woodworking joints the glue only serves to hold the joint together; the main structural strength is in the wood itself. Other operations, laminating for instance, rely entirely on the glue bond for their strength, and it is this sort of operation where it is worth considering using a specialist glue.

Glue is normally only a small item in the cost of a typical project, so it is well worth taking a little time to choose the right glue. However, it doesn't make sense to have a dozen bottles of different glues on the shelf going past their best by date. Most of us have just a few glues that we use regularly, and will occasionally buy in a specialist glue for a specific project. So which ones to choose?

Three essential adhesives

Tried and tested over time, **PVA** is hard to beat as a cheap, easy-to-use glue for indoor projects. It cleans up easily, sets clear and makes a more than adequately strong joint in most timber. It's my first 'must-have' glue.

My second is **Titebond 3**. This is slightly more expensive than PVA but is well worth the extra as it is such a versatile, easy-to-use yet highly water-resistant glue. There is no perfect all-round glue, but Titebond 3 comes closest in my opinion, and if I could only have one glue this would be it.

One problem with PVA/aliphatic glues is that their open time is quite short, especially when used with an absorbent timber. For a complicated glue-up this can be a problem, and it's always worth having a slower-setting glue on the shelf. I used to use polyurethane glues extensively, but I've recently gone off them for general use. Polyurethane needs particularly tight joints to have any strength, and I've been disappointed to find that constant weathering can cause the bond to fail over time.

So my third and final essential glue is **Polymite**. Cheap and relatively easy to use, this glue comes in very handy for a number of tasks that PVA glues do poorly. Its slow set is useful and, unlike PVAs, it will not creep, so it's ideal for veneering and for stressed joints.

The specialists

Then there are the specialist glues. Aerolite 306 can be limited for general work because of the rapid initial cure, but for laminating it is hard to beat. Polyproof is the only 100 per cent waterproof glue here; it is still the number one for exterior joinery. Finally, with the West System we have an extremely water-resistant glue that sets clear, so it's ideal for exterior furniture. Furthermore, its long open time can be a real advantage with a particularly complicated glue-up.

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TURNING

Lathe projects, tips and techniques

Chris Child

Cracking nuts over Christmas set Chris thinking: could he turn a bowl of nuts and a nutcracker into a stylish combination? Here's his solution, made in English elm

Alan Holtham

Choosing a lathe is the first in a new six-part series from expert Alan Holtham that aims to introduce beginners to the essentials of woodturning

Bryn Edwards

A hand mirror is the perfect accompaniment for any lady's dressing table, and makes an inexpensive yet attractive gift. Bryn Edwards presents a simple example made in yew

CREATIVE WOODTURNING

Creative Woodturner software is now so popular in the world of woodturning that it's going to be available to download online for both domestic and international customers. The complete download comes as a trial version, with the option to buy after 10 days. Dr Matthew Ryan, creator of Creative Woodturner, said: "The software has always been successful at woodturning shows whenever I demonstrate it. By offering a full-trial version online, everybody can appreciate the true delights of using Creative Woodturner for themselves."

The best-selling woodturning program, which was launched in November 2004, has now been sold in 25 countries worldwide. This simple and quick-to-learn software package has allowed woodturners to create stunning three-dimensional designs on their home computers before transferring them to their lathes. Creative Woodturner's innovative and practical approach has brought the digital age to the age-old discipline of woodturning.

Creative Woodturner will be available to download for £40, and customers can still purchase a boxed version for £60. Furthermore, Creative Woodturner has launched a Facebook group to coincide with the launch of its new website. Dr Ryan said: "The group, called Creative Woodturner, is for everyone who enjoys woodturning. The Facebook group allows you to share photos and videos of your woodturning, discuss designs, woods and woodturning ideas and chat with others who love woodturning."

The all-new woodturning website, www.creative-woodturner.com, also has a News feature, which will publish news on woodturning and other related articles from around the world. If you have any woodturning news, articles, or events that you want publishing, contact Creative Woodturner's news team at news@creative-woodturner.com

See our turning competition winners in the April issue!

The nutcracker

CHRIS CHILD

Cracking nuts over Christmas set Chris thinking: could he turn a bowl of nuts and a nutcracker into a stylish combination? Here's his solution, made in English elm

English elm is a timber that varies enormously in both figure and texture, and indeed it can be rather uninteresting in its straight-grained form. However, when a board is taken from the base of the trunk or the crotch of a bough, the grain pattern and colour can be quite spectacular!

Unfortunately, there seems to be a law that wherever rich figured grain occurs, it's inevitably accompanied by knots and splits or some other kind of fault. You can see a large knot in the side in this 250 x 100mm disc, which I positioned so it would be cut away when the concave sides of the bowl were shaped, **photo 1**.

Mounting the blank

First mount the disc onto a faceplate, making sure that the screws are sufficiently spread out so that the holes don't remain in the platform for the nutcracker mechanism.

To make the simple centring device which I used to find the centre of the disc, cut out a circle of Perspex and scratch a series of radiating circles with a sharp point held in pair of compasses, **photo 2**.

Use at least four screws to fix the faceplate to the blank securely, **photo 3**. I used size 8 Spax screws; their machined serrated threads penetrated about 20mm into the surface.

When you've fitted the bowl onto the lathe, you may like to dispel any further doubts about the reliability of the hold by giving the back of the bowl blank a couple of blows with the palm of your hand. If, after this treatment, the blank remains solid with no detectable gap between the faceplate and the bowl, then it is safe to proceed.

Setting up the lathe

The next thing to do is select a suitable lathe speed, in this case about 600rpm. If you're unfamiliar with turning large diameter work on your lathe, try the slowest speed first and then, if this seems a little slow, move it up a notch.

When turning bowls or other hollow vessels, it's a great advantage if your lathe has a swivelling headstock, as this enables the work to be rotated at 90° to the lathe bed. With this option, you can stand comfortably around the workpiece and not have to stretch awkwardly across the lathe bed or compromise with the cutting angle of the tools.

Before switching on the lathe, check that the blank rotates clear of any obstructions such as the tool rest, and then stand clear of the line of rotation to give the work a test run, leaving your hand near the switch in case a problem does occur.

Always wear eye protection when turning large-diameter work. The speed generated at the rim of the disc is far greater than on spindle work, and the risk of high-speed chips flying off is greatly increased.

The right grip

Even though I'm naturally right-handed, I hold the gouge handle in my left hand to start cutting the bowl's side shape. This enables me to look down the back of the tool and judge the angle of the bevel in relation to the work surface. It also allows me to see the precise point at which the cutting edge of the tool comes in contact with the work, which is important when performing finishing cuts.

Because the left hand anchors the tool handle against the body and the right hand is positioned between the back of the tool and the work, **photo 4**, most of the pressure on the tool is exerted downwards onto the toolrest. This avoids the tendency to press the bevel too much against the work, which causes uneven cutting, leading to a rippled or wave effect on the work's surface.

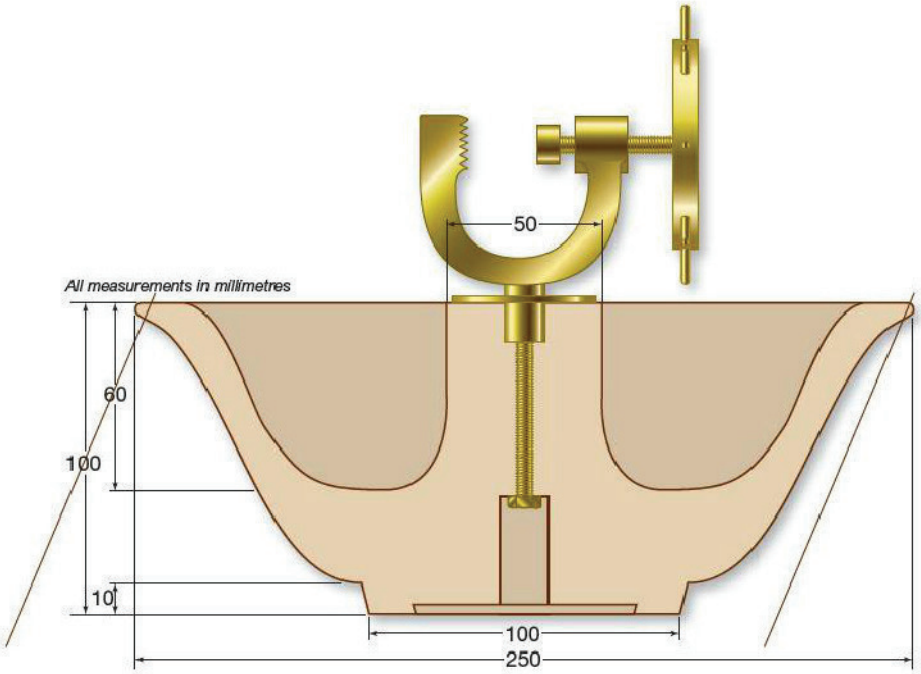
It also means I can stand in a much safer position, to one side of the rotating disc, and direct the flow of the shavings away from my body and straight onto the floor. I use this stronger over-hand grip when I am

THE PERFECT GOUGE

The ½in super flute bowl gouge, ground with the sides of the flute slightly back, is the ideal turning tool for this kind of hollow-formed project. I ground the bevel with a 40° angle, which is very efficient at removing waste and produces a superb finish into the bargain.

The bevel of the tool needs to be straight and free from secondary facets so it can perform like the sole of a plane, gliding on the surface of the work while the edge cuts a section of the waste away.

Standard (top) and blunt bevelled bowl gouges



engaged in turning troublesome grain or at the start of a job, but once I'm confident of the terrain, I change over to a more open grip, sliding the tool through my fingers. This allows a wider and smoother movement of the tool.

Starting to carve

The best way to shape the sides of a bowl is to start cutting the corner away first. Hold the gouge firmly against the toolrest, slightly on its side, with the bevel in line with the face of the work surface. Start the cut by re-angling the tool so that the cutting edge of the gouge is engaged with the work at the base of the flute. The tool must be held rock solid in the path of the oncoming wood and must not be influenced by the uneven surface it's cutting.

After each pass of the disc, start a fresh cut slightly behind the start of the previous one. The action of the gouge slices through the wood fibres at their base and breaks them away at the side in one continues action, **photo 5**. At the same time, the bevel of the gouge glides over the smooth new surface that has just been produced. As the work proceeds, you'll need to move the toolrest nearer to the work to maintain control over the cut.

Shaping the bowl

Roughly form the shape of the plinth with the bowl gouge by simply working the tool into the base, **photo 6**. Then quickly swing the handle round and change direction, so the cut travels up the side of the bowl.

To form the ogee curved sides of the bowl with one continuous cut, slowly swing the gouge in an arc so that the bevel of the tool follows the curve, **photo 7**. To do this while still supporting the tool handle against your body, stand in the position

1 The raw elm disc has a large, unsightly knot in the side which needs cutting away

2 Use a simple centring device to find the centre of the bowl blank

3 Use four size 8 Spax screws to secure the faceplate to the blank

4 Start cutting away the corner of the bowl blank...

5 ...and begin to form the rough shape of the sides in one continuous cutting action

6 Roughly form the shape of the plinth with the bowl gouge

where you anticipate finishing your cut, lean back so that you start the cut slightly stretched out and off-balanced, and then slowly move back into a balanced position as you finish the cut.

Make subsequent cuts to improve and modify the shape by slicing off fine fillets. Start with the bevel flat on the surface; then feather the edge of the gouge into the surface so no entry or exit sign is visible.

Finishing the outside

You can use a scraper to shape the outside of the bowl, but this tool will usually undo the clean finish produced by previous sliced work with the gouge, causing two broken or roughed-up areas where the surface has been scraped in the wrong direction.

You'll get the best finish with a freshly sharpened gouge. Perform this in the same way as the continuous shaping cut, only cut much more finely and with a slower rate of feed, **photo 8**. Still make use of the bevel to prevent the edge from sinking too deeply into the work surface.

Creating the plinth

To lift the sides and give the bowl a lighter, more elegant appearance, you might like to provide it with a plinth. Form the sides of the plinth first, by slicing sideways with the corner of a ⅛in parting tool, **photo 9**.

To form the shoulder where the plinth meets the side of the bowl, use the same tool by placing the edge right in the corner of the shoulder and feeding it sideways, using only the corner of the blade to cut, **photo 10**.

Once you've formed the sides of the plinth you can attend to the base. Simply drag the gouge against the side of the parallel positioned toolrest, using a straightforward cutting angle, **photo 11**.

Recessing the base

I used the masterchuck to hold my bowl on the lathe. Cut the recess in the base of the bowl with a small square-ended scraper, **photo 12**. Place the tool at a horizontal angle to the work surface and hold it firmly down on the toolrest so it's absolutely rigid when it is performing its cut. You mustn't have any vibration, because this will effect the centring of the bowl when it is fitted on the chuck.

Cut the dovetail with a specially ground scraper which forms the same profile as the chuck jaws, **photo 13**. As with the square-ended scraper, it's very important that this also remains absolutely rigid while it cuts the profile shape of the dovetail.

Drilling the base

Before doing anything else, test that the chuck fits properly, by hand-tightening it into the recess and rotating the lathe to make sure that it is centring correctly, **photo 14**.

Rotate the headstock so that the work is over the lathe bed and use the tailstock, fitted with suitable drill, to bore out the hole for the bolt which holds the mechanism, **photo 15**.

Hollowing out the bowl

Remove the work, turn the headstock to the 90° position and fit the chuck onto the lathe. Make sure that the bowl is tight and well bedded onto the chuck before you start hollowing your bowl. Flatten off the face using light cuts with a freshly sharpened gouge. At this stage the bowl can easily be dislodged from the chuck by a heavy cut or loss of tool control. Mark out the width of the mechanism's base onto the face of the bowl and form a small recess for the stalk of the mechanism, **photo 16**.

7 Swing the gouge in an arc so the bevel follows the curve

8 Perform a light finishing cut with a freshly sharpened gouge

9 Form the sides of the plinth first using a parting tool

10 Form the shoulder using just the corner of the blade

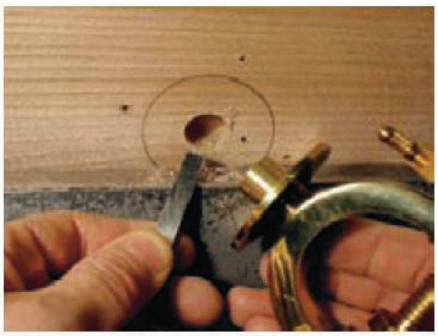
11 Flatten the base by dragging the gouge along the toolrest

12 Cut the recess in the plinth with a square-ended scraper

13 Form the dovetail with a specially ground angled scraper

14 Test the chuck in the recess and check the centring

15 Bore the hole for the bolt of the nutcracker mechanism



16 Form a small recess for the stalk of the nutcracker mechanism

17 Use vertical toolrests to guide the gouge as you shape the bowl

18 Use the same technique to start shaping the central island

19 Keep feeding the gouge into the bowl to create a conical cavity

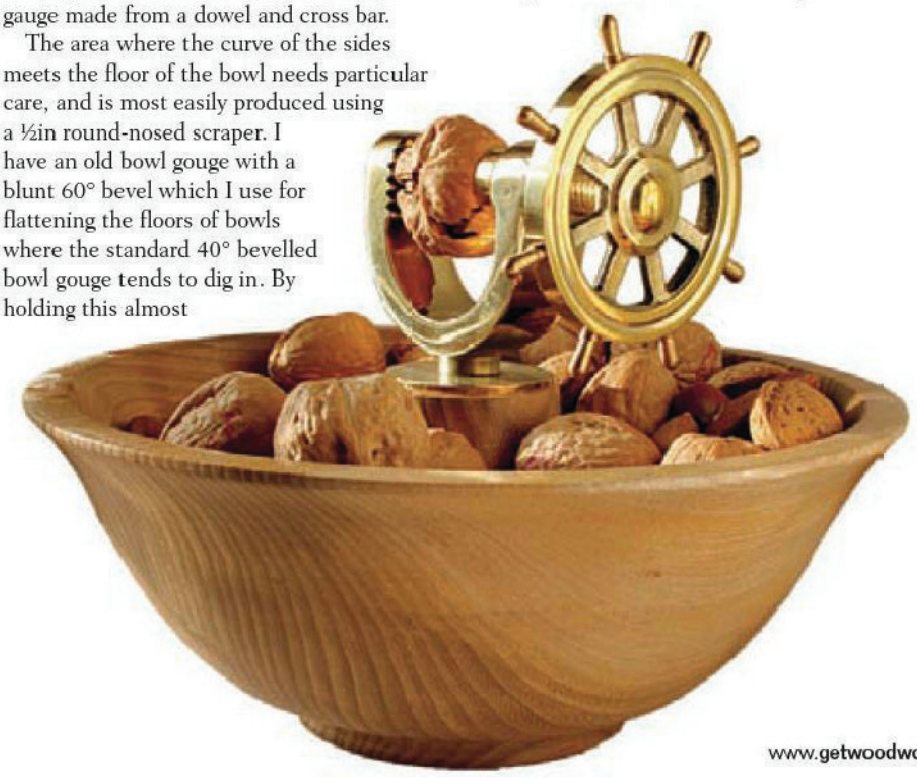
20 Finish the floor of the bowl with the blunt angled gouge

Hollow out the bowl by cutting into the face from both directions. I use a pair of vertical toolrests made out of scraps of hardboard cramped to the toolrest. These prevent the gouge from slipping backwards, which could damage the edge of the bowl and the central island, **photo 17**. Arc the gouge in a lateral plane while feeding it in to form the bowl's sides. Test the thickness between your fingers after each cut.

Forming the central island

Use the same technique mirror fashion when forming the sides of the centre island, **photo 18**. Keep feeding the gouge into the bowl to produce a conical cavity, **photo 19**, which you can test for depth with a depth gauge made from a dowel and cross bar.

The area where the curve of the sides meets the floor of the bowl needs particular care, and is most easily produced using a ½in round-nosed scraper. I have an old bowl gouge with a blunt 60° bevel which I use for flattening the floors of bowls where the standard 40° bevelled bowl gouge tends to dig in. By holding this almost horizontally and flat on the toolrest, I work lightly over the floor area so that it forms a smooth continuous curve with the sides and the central island, **photo 20**.



Finishing touches

To sand the work, I use J-flex aluminum oxide cloth abrasive because it's so long lasting. What's more, the flexibility of the fabric makes it ideal for sanding the outside and the more difficult inside concave curves that occur in bowl turning.

I start off with 100 grit and work my way through to 240 grit, finishing off with 400 grit. The purpose of the sanding is not just to make the surface smooth but also to remove any tool marks, and these usually become visible only when you're using the finer grades of abrasive.

Polishing up

When the surface is perfectly smooth and free from any marks (other than the grain of the wood), you can seal it with some polish. I chose tradition French polish, wiped on using a piece of clean cotton flannelette shirt with the lathe stationary. Apply one or two coats, then leave this to dry for ten minutes before rubbing on a fast-drying brie wax or its equivalent and burnishing it up to a soft, even shine.

FURTHER INFO

Nutcracker mechanism

The ship's wheel nutcracker mechanism costs £15.95 plus £4.25 postage and packing, and is available from:

Peter Child

01787 237291

www.peterchild.co.uk

NEW SERIES 1: THE LATHE

Turning for beginners

ALAN HOLTHAM

Fancy trying your hand at woodturning, but don't know where to start? Alan Holtham will show you the way in this brand new series. Here's part 1...

A LITTLE HISTORY

The origin of turning dates to around 1300BC, when the Egyptians first developed a two-man lathe. One man would turn the workpiece with a rope, while the other cut shapes in the revolving wood. The Romans improved the Egyptian design with the addition of a turning bow, and early bow lathes were also developed and used in Germany, France and Britain.

In the Middle Ages a pedal replaced hand-operated turning, freeing both the craftsman's hands to hold the turning tools. The pedal was usually connected to a pole, which acted as a return spring. A two-person lathe, called a great lathe, was also developed; this allowed a piece to turn continuously, as on today's power lathes. A master would cut the wood while an apprentice turned the crank.

During the Industrial Revolution the lathe was motorized, speeding up the work rate and also allowing the turning of metal. It had become a machine we'd recognize today.

It's a bit obvious, but the first thing a woodturner needs is a lathe. It's actually the world's oldest 'power tool' – see the panel (left) for a bit of history. As you begin to investigate what's available, you'll soon discover that there's a bewildering choice of models, with very different specifications and prices, and it's very easy to become confused about exactly what you require. If this is your situation and you need some help, then this feature highlights the main factors you need to consider before you buy.

The lathe today

Woodturning has progressed enormously in recent years and is now no longer just a means of producing functional items, but is

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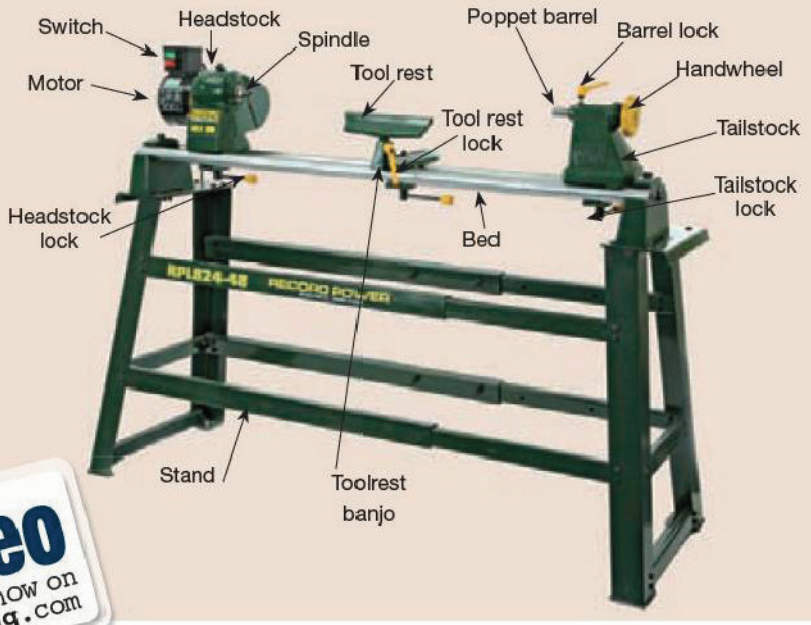
IDENTIFYING THE PARTS



fast approaching the status of an art form. To fuel this massive increase in popularity and demand, many woodworking machinery manufacturers have hurriedly added lathes to their range, but a good machine requires a number of essential features that are often overlooked in the rush to get new equipment onto the market.

Cheap and cheerful

There are lots of very cheap lathes on the market that all look the same and appear to give you a lot for your money, **photo 1**. These machines are very much entry-level models, being sufficient to get you started, but if you progress much beyond very basic work you will soon find them very limited. Some even come with a stand and incorporate variable speed, but there is a definite correlation here between the price you pay and the quality you get.

Weight is good

As a general rule, the heavier and more substantial the machine, the better. Vibration is the woodturner's worst enemy, particularly if the workpiece is long or out of balance, and there is nothing to beat sheer weight to minimise this vibration.

For this reason, it's better to buy a lathe that is cast rather than fabricated, but this inevitably often involves greater cost. However, do remember that unlike a lot of other machines, you will often spend hours working at the lathe. Consequently it needs to be as smooth and quiet in operation as possible, so always think carefully about the quality and buy the best you can afford.

Bed and swing

When you are buying a lathe, there are two capacities you need to consider. The distance between centres determines the maximum length of workpiece you can turn. For general work you will need at least 30in, and preferably 36in, **photo 2**. Incidentally, lathe dimensions are still mainly given in imperial measurements; for metric buffs the equivalents are 760 and 915mm. Longer beds are available, and whilst these may appear attractive, they can add to any vibration problems unless they're properly braced, so this is one instance where it is better not to buy too much capacity unless you have the specific need for it.

Another useful measurement of size is the 'swing' of the lathe, **photo 3**. This is the height of the main spindle above the bed and therefore determines the maximum diameter of work you can turn, unless the head rotates round. For anything remotely approaching serious work, you need a swing of at least 9in (230mm), but in practice the bigger the better.

Bench or floor mounted?

A professional turner will probably need a heavy-duty floor-standing lathe, but for the home woodturning enthusiast a bench-mounted model will probably be quite sufficient, **photo 4**. These bolt down to any convenient work surface, but this must be really solid. The advantage of mounting it on your own workbench is that you can get the centre height just right – a serious consideration if you anticipate doing a lot of turning in the future.

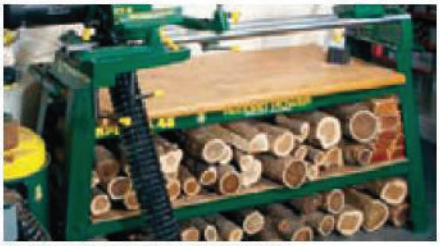
1 Cheap lathes appear to give you a lot for your money

2 You need a distance between centres of at least 30in...

3 ...and a swing of at least 9in between spindle and bed


4 A bench-mounted model like this will suit most woodturning beginners


5 Some more rigid legstands include provision for a tool shelf


6 Under-bench storage helps to give a stand useful extra mass


7 The lathe bed is made from heavy metal bars or tubes

Stands and storage

Several manufacturers provide legstands as an optional extra if you don't want to build a bench. These stands vary from a rather crude folded steel or tube arrangement, to a more rigid affair with provision for a tool shelf, **photo 5**. Bear in mind that the performance of your lathe depends on how well it is mounted, so buy a legstand only if it looks man enough for the job.

A homemade wooden bench is often better at absorbing vibration than a crude metal stand, and it can change the whole operation of the lathe. If you are short of space in the workshop, you can build in a lot of storage for tools or raw materials under the lathe, which also helps to give the structure a bit more mass, **photo 6**.

The lathe bed

The bed is made from either heavy metal bars or tubes, **photo 7**, but some machines still feature a flat cast bed. This may be quite crude on the cheaper machines, or a work of art on top-of the-range models, **photo 8**.

Whatever the construction, it must be strong enough to support both the tailstock and the toolrest without any flexing, and allow free and easy movement of them both. It must also permit shavings to fall through unobstructed and should sit well clear of the bench, so you can slide the tools underneath it without banging the sharpened edges.

The headstock

This is the heart of the machine and needs to be really solid, and preferably cast. Fabricated headstocks are rarely heavy enough if you need to turn large or out-of-balance work. The headstock also needs to have a good spread between the bearings to ensure maximum rigidity of the spindle.

Some imported models have what looks like a huge headstock, , **photo 9**, but when you remove the belt cover the two spindle


8 More expensive beds are solid castings that are almost a work of art


9 Some imported models have what looks like a huge headstock


10 The bearings should be good quality heavy-duty ball races

11 Tapered bronze-sleeved bearings give greater support than ball races

12 The headstock may have the facility to swing round through 90°

13 Swinging the head off-centre keeps tool handles clear of the bed

14 You need an additional tool rest for turning big-diameter bowls

15 A headstock you can move along the bed is a big advantage

bearings are actually quite close together. A small bearing spread like this will causes problems with rigidity, particularly on large diameter work, so always look for a machine where there is plenty of distance between the bearings.

The bearings themselves should be good quality heavy-duty sealed ball races, **photo 10**. Some machines have a tapered bronze sleeved bearing which gives much greater support than ball races, although it does require occasional adjustment. However, when set up correctly this arrangement supports the spindle over a much greater length and provides totally smooth and vibration-free running, **photo 11**.

A swinging head

The headstock may be permanently fixed in line with the bed, or it may have the facility to swing round so that the spindle ends up at right angles to the bed for bowl turning, **photo 12**.

I would rate this swinging head as an essential feature on a lathe; the real advantage is not only for bowl turning, but also for any turning where you have to work over the bed. Swinging the head just a few degrees off-centre allows you to work with the tool handles clear of the bed, **photo 13**. Although you can still work off the standard toolrest with the head swung a little, for big diameter bowl turning you will need an additional bowl rest to maximise the capacity, **photo 14**.

If you are restricted with regards to space, many of the swinging head machines also allow you to move the headstock bodily along the bed, which is a great advantage if the end of the machine has to be up against a wall, **photo 15**.

The spindle is key

The headstock spindle is threaded to take a range of screw-on accessories such as chucks, **photo 16**, so you need one with a standard thread or you'll be limited in the range of extras you can buy. On many smaller lathes, a thread size of ¾in x 16 tpi is the industry standard, which makes upgrading your machine less costly.

This which means that you can then take all your threaded accessories with you, rather than renewing them with the lathe when you upgrade it. This is an important point, as you will often have a substantial investment tied up in chucks and other accessories.

16 A spindle thread size of ¾in x 16 tpi is the industry standard

Morse tapers

It is essential that your lathe is also equipped with Morse tapers in both headstock and tailstock. This is a universal means of installing centres and a range of other tooling, **photo 17**, and does not restrict you to using only the original manufacturer's fittings.

There is a huge range of Morse taper kit on the market, but if you buy a lathe with only screw-on fittings you are very restricted as to what you can use. Morse tapers are commonly No 1 or No 2 on the smaller lathes; the bigger the number the thicker the taper. The tapers just push into the headstock and are then knocked out afterwards with a bar that runs through the

17 Morse tapers are a universal means of installing centres

18 A solid spindle needs a centre ejector screwed onto the spindle nose

19 A three-or four-step pulley gives a speed range of 400-2000rpm

20 Some lathes use cone pulleys to change the lathe speed

21 Modern electronic control offers infinite variation of speed

22 Memory functions can remember your favourite speed settings

main spindle.

If the spindle is solid, there needs to be a centre ejector which screws onto the spindle nose before you insert the taper, **photo 18**. Take great with these tapers and keep them clean and undamaged, or they will start spinning inside each other, which as well as causing them damage, will lead to inaccuracies when you are using fittings such as drill chucks.

Motor and drive

A small lathe will need a motor of at least ½hp, particularly if you envisage turning bowls, but bigger is better in this case. In order to give some speed variation, the motor is usually fitted with a three or four-step pulley and a matching one on the spindle, **photo 19**, to give a speed range from about 400 to 2000 rpm. This is achieved with a belt, which is moved around on the pulleys to select the required speed. The traditional V belt has now virtually been replaced with the more efficient flat poly V type, which gives a smoother, vibration free drive as it has no lumpy joint.

Some lathes achieve the speed variation in other ways. This may be mechanical, where a lever operates two cone pulleys, so changing their diameter and therefore the speed, **photo 20**. This system does work, but it is prone to wear belts very quickly and is rather noisy. Also, you can only change the speed whilst the lathe is running. So if you finished the last job at top speed and now want bottom, you firstly have to switch the lathe on and reduce the speed before you can mount the work, all of which is a bit fiddly and time consuming.

Electronic controls

The ultimate for speed changing is an electrical speed control, which gives you infinite variation of speed at the turn of a knob. This is usually reserved for the top-of-the-range lathes, but in the past electronic speed variation has suffered from loss of torque at low speeds. Fortunately modern electronic technology has largely overcome this problem, usually by operating a three-phase motor through an inverter off a single phase supply, **photo 21**.

State-of-the-art electronic speed controls have memory functions that can remember a selection of favourite speeds. They can also sense incidents such as dig-ins and then instantly shut down the power, **photo 22**.

Easy-reach switchgear

Whatever your motor type, make sure that the switchgear is easily accessible and doesn't get hidden by large workpieces. I prefer to have the switch (or at least a separate 'off' button) at knee height for emergency situations when you have both hands full. Some machines have a magnetic switchbox, **photo 23**, which allows you to move it around at will depending where you are working.

Reverse gear

Motors with a reverse facility are a valuable aid for sanding, and are quite safe to use on between-centres work. However, if you engage reverse with a piece of faceplate work, there is always the possibility that it will unscrew itself, so lathes with reverse should feature a faceplate locking system.

The tailstock

This needs to be as substantial as the rest of the lathe, as it has to provide firm support for between-centres work. Make sure that it slides freely and locks firmly onto the bed. The tailstock barrel is moved backwards and forwards with the handwheel and needs plenty of travel for drilling work, **photo 24**.

23 A magnetic switchbox can be fixed wherever you're working

24 The tailstock barrel needs plenty of travel for drilling work...

25 ...and should be drilled through to allow for long hole boring

26 A cam lock on the tool rest is easily accessible from the front

It should be bored with a Morse taper to match the headstock, and should also be drilled right through to allow for easy removal of the tailstock centres and for long hole boring, **photo 25**.

Toolrest and slide

The toolrest assembly is another vital part of the lathe, the main requirement being that it is quickly and easily adjustable. The actual locking mechanism varies from machine to machine; some use a simple clamp and lever under the bed, whilst others use a cam type of lock, **photo 26**, which is easier to use as it is accessed from the front of the lathe. Always check this point before you buy.

The toolrest itself needs some vertical height adjustment and should lock into the holder with a simple handle that works effectively; there must be no movement possible once it's locked. For general use the rest needs to be about 10in (300mm) long, and made of heavy cast construction so that there's no vibration when you are working at the end of it.

Alternative length rests are available, **photo 27**. You will probably need a shorter one at some stage. For very long work there is a rest with two stems, but this requires an additional toolrest holder.

Making a choice

So now you know all about the lathe, how do you choose one to suit your needs?

Firstly, consider the type of turning you will be doing. If you will mostly be turning spindles, then there's perhaps no need for a swinging head model, but rigidity of the bed and good between-centres capacity are important features.

On the other hand, if you think your main interest will be bowl turning, a swivelling head is vital but between-centres capacity is less important. You'll also need plenty of motor power for big-diameter bowls.

If you want to do a bit of everything, try to decide on the biggest diameter you want to turn and choose a lathe accordingly.

Think also about how often you will use the machine. If you anticipate being an occasional user making a few simple furniture parts, then a basic model is all you'll need. But if you think you will spend a lot of time at the lathe as your skills and ambitions grow, then you will need the extra power and weight of a larger machine.

As you go further up the range you will find this extra power and solidity allows you to turn more quickly and confidently. You can take deeper and more ambitious cuts, and the ease of use of features such as electronic variable speed control make turning more intuitive and enjoyable.

Above all, bear in mind that woodturning is an addictive hobby, so try to buy in as much spare capacity as you can afford now to save expensive upgrades later on.

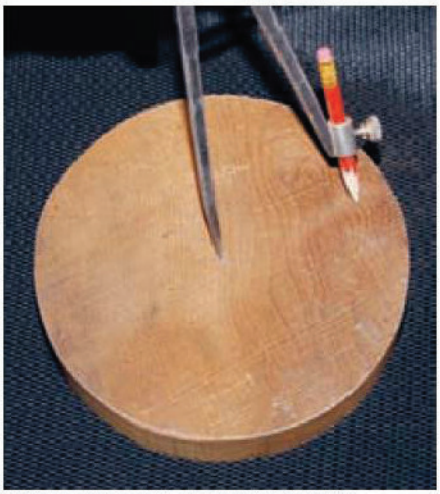
27 Toolrests are available in a range of different lengths

NEXT MONTH

Alan introduces the basic woodturning tool kit, and explains how to separate the wheat from the chaff

Daily mirror

1 Two yew blanks and the circular mirror, ready for work to begin



2 Use compases to draw a circle on the blank the same size as the faceplate

BRYN EDWARDS

A hand mirror is the perfect accompaniment for any lady's dressing table, and makes an inexpensive yet attractive gift. Bryn Edwards presents a simple example

A traditional round hand mirror is not a very difficult item to make. It's well within the scope of turners with intermediate skills who have mastered the basic principles of spindle turning and obtained a reasonable amount of confidence with a bowl gouge.

The design

A hand mirror mustn't be too heavy or unwieldy, so the parts should not be any larger than necessary. The general features of this design are set out for a 126mm diameter mirror. The blank for the head needs to be a little over 175mm in diameter and 25mm thick, photo 1. The handle should be about 150mm long and 25mm in diameter.

There are many possible variations on this theme. If you want to use a bigger mirror glass, say 150mm diameter, then some of the dimensions will have to be scaled up.

The wood

I've regularly used yew for my mirrors; it turns very readily and it looks attractive. Whatever species you use, choose the blank for the head with care. Mirror glass is thin, fragile and inflexible. The possibility of movement of the wood after the piece is finished must be reduced to the minimum. Suitable wood is available from many different sources, but whatever you buy, make sure it is kiln-dried to reduce the risk of cupping or splitting.

The mirror holder

Start by turning the mirror holder. I'm a strong believer in gluing the work to a faceplate. You need one about 100mm in diameter, with a small piece of MDF screwed to it. True this up on the lathe, then mark the faceplate diameter on the back of the blank, **photo 2**, and stick the faceplate to it with hot glue, **photo 3**.

First stages

Mount the faceplate on the lathe and true up the edge, then the face, **photo 4**, and check that the face is flat. Then mark out the diameter of the mirror, cut away its

3 Glue the blank to the faceplate, using the pencil circle as a guide

4 Mount the workpiece on the lathe and true up the edge and face

5 Mark out the size of the mirror on the blank and cut away its recess

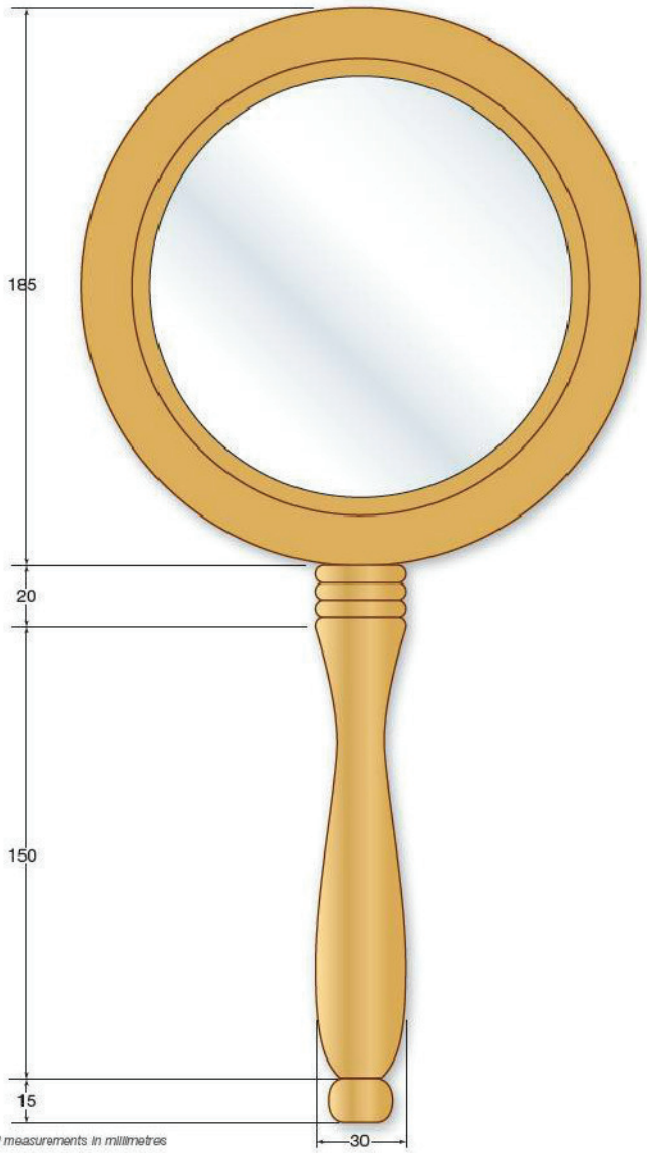
6 Recess the centre of the mirror recess to take the four-jaw chuck

7 Form the circular beading and start shaping the outside edge of the blank

8 Sand the disc on the lathe, working from 180 grit down to 400 grit

9 Mount the disc on the four-jaw chuck and shape the rear face

10 Round over the back of the disc with a scraper



All measurements in millimetres

11 Drill a 12mm diameter hole for the handle in the base of the mirror holder

12 Mount the handle blank in the lathe and start roughing it down

13 Form a spigot on one end and check its diameter with callipers

14 Add the turned detail at the other end of the handle

15 Sand the handle smooth, then polish and wax it to match the mirror holder

16 The handle and mirror holder can now be glued together

17 Use a thin bed of mastic to stick the mirror into the holder

recess, **photo 5**, and check that it fits. Trim rge recess further if necessary.

Cut a recess in the centre of the mirror area to take the four-jaw chuck, **photo 6**. Then continue turning the rest of the mirror face, forming a neat bead and a curved outer edge, **photo 7**. Finally, sand the disc smooth, working from 180 grit down to 400 grit, **photo 8**.

Finishing the back

Use a chisel to separate the blank from the faceplate, forcing them apart gently. Then reverse the blank on the four-jaw chuck and true it up, **photo 9**, before forming the final, gently curved shape on it, **photo 10**.

Finish the back with a coat of friction polish and a coat of wax, then apply the same finish to the front (avoiding the mirror recess, where any wax will prevent the mirror from bonding to the holder).

Finally, drill a stopped 12mm diameter hole at right angles to the edge of the mirror holder to take the spigot on the handle, **photo 11**.

Turning the handle

Mount the handle blank between centres and start roughing it down to a cylinder, **photo 12**. Form a 12mm diameter spigot on one end to fit the hole in the mirror holder, and check its diameter with callipers, **photo 13**.

Turn the rest of the handle to form a tapered bulbous shape, and add whatever details you wish; I formed three beads at the mirror end, and a round finial at the other end, **photo 14**. When you're happy with the final shape, sand it smooth, **photo 15**, and polish and wax it to match the mirror holder.

Assembling the parts

Test the fit of the handle spigot in the hole in the mirror, then glue it in place using PVA adhesive, **photo 16**. Leave it to set hard overnight. Finish the assembly by sticking the mirror into its recess on a thin bed of silicone mastic, **photo 17**. Wipe away any excess mastic at once to prevent it from marking the wood.

Finish the woodwork by rubbing on a final coat of wax polish, and don't forget to wipe your finger marks off the glass!

Andy Standing

This month's Giant Test features six router tables ranging in price from £150 to almost £400, and shows that money buys the best this time around

Ian Taylor

Taylor's Testbench looks at a drill driver, a cordless pin nailer, a shoulder plane, pickling stains, a toolbag, some wooden replacement plane handles, a T-track bolt kit and a cunning sharpener for carpenter's pencils

ALSO TESTED

- Scheppach Basato 1 bandsaw
- Woodster BS52 router
- Tenon saws

PLUS

MACHINERY CHECKLIST 7:
Biscuit, domino and dowel jointers

OUR RATINGS

5 Faultless performance, excellent value for money
4 Very good performance, good value for money
3 Average performance, reasonable value for money
2 Less than satisfactory performance, poor value for money
1 A stinker: avoid at all costs!

The Woodworker BEST ON TEST — The tool in the group with the best overall performance

The Woodworker RECOMMENDED — Other tools on test that performed well

The Woodworker BEST VALUE — A great product for the price

ON TEST

Tools & accessories tested by our experts

PRICE: £10.95 (+ carriage)

RATING

Value 0 5
Performance 0 5

PROS

- Covers all popular screw gauges
- Positive fixing of cutter and collar
- Can be resharpened easily

CONS

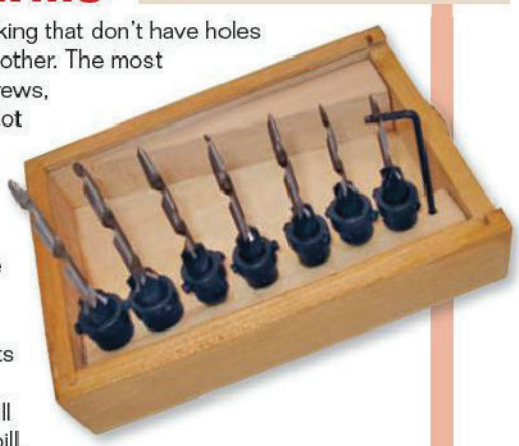
- None

FURTHER INFO

Craft Supplies Ltd
01433 622550
www.craft-supplies.co.uk

Gordon Warr has been trying out a new solution to the three-holes-in-one problem

CRAFT SUPPLIES multi-function drills



There are few projects in woodworking that don't have holes in them of one size and type or another. The most common are those needed for screws, where the textbook requirement is a pilot hole in the workpiece you're screwing into, and a clearance hole through the piece you're attaching to it. If the screw is countersunk or needs to be counterbored, there's a third hole to be tackled. Each requires a drill of a different size

If you can never find the three drill bits you need for this sequence of operations, this multi-function set of drill bits from Craft Supplies should fit the bill. There are seven drills in the set, to match screw gauges 5, 6, 7, 8, 9, 10 and 12. They're equally suitable for use in hand-held or bench drills.

The drills in use

This set of bits is clever in more ways than one. The bit itself is of a spiral cutting design, tapering towards the pointed end. This means that the clearance and pilot holes are prepared at the same time. The countersinking cutter encircles the bit and has four cutting edges, ground to about 45°. The drill tips and the edges of the countersink cutter can both be sharpened if necessary as use takes the edge off them.

As this cutter is adjustable, it can be set to suit a screw hole of any depth up to the maximum limit of the drill. The collar is also adjustable; you set its position on the cutter body to form a countersink or a counterbore of whatever depth is required. This counterbored hole allows the screw head to be sunk out of sight, and to be concealed beneath a wooden plug if required. The cutter and the collar are each fixed in place by two small grub screws, which guarantee a slip-free fitting. An Allen key for tightening and undoing them is supplied with the set, which comes in a neat fitted wooden box.

Each drill bit has a matching countersink cutter and collar

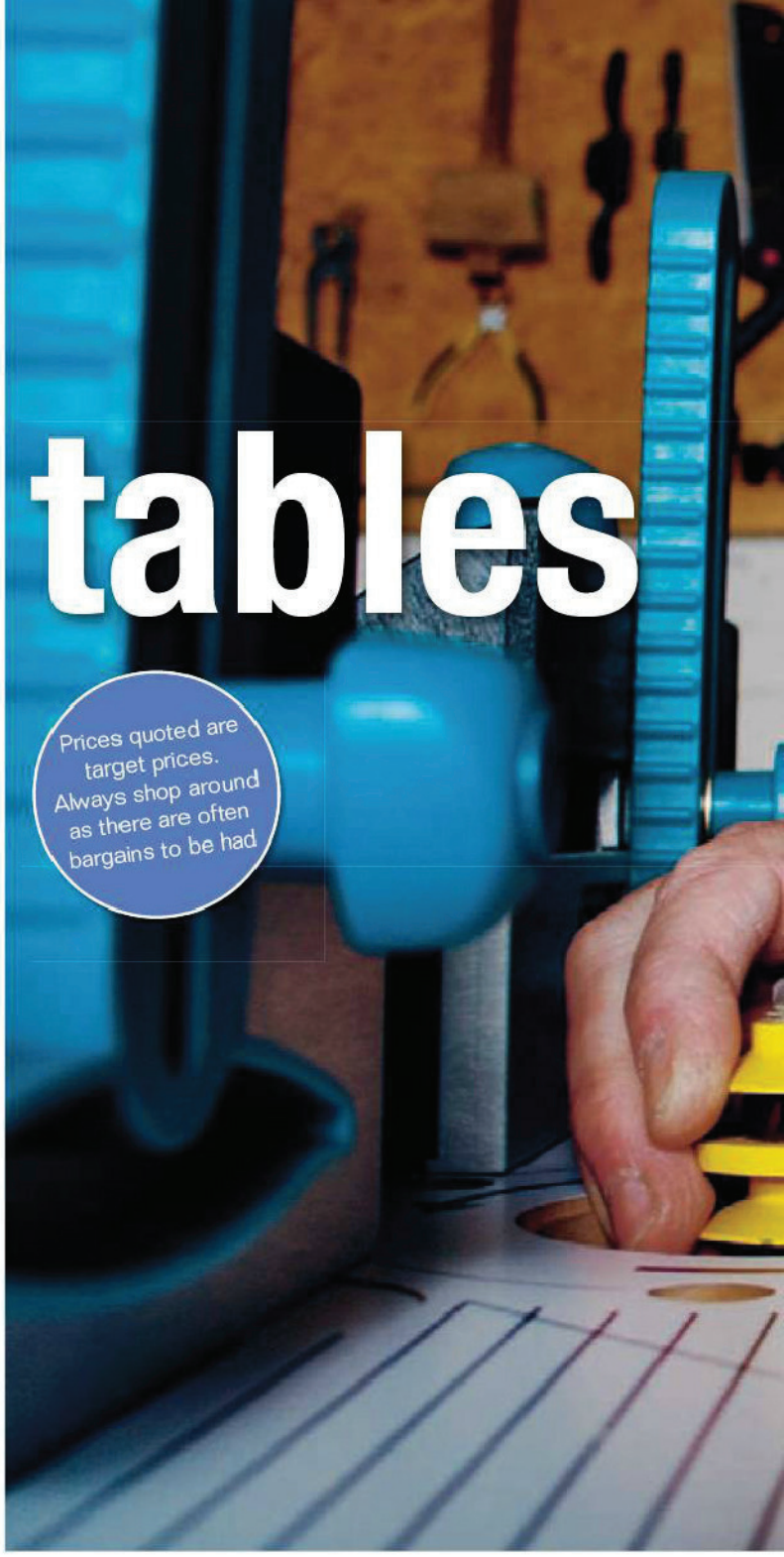
Both cutter and collar are secured with a pair of grub screws

GIANT TEST

Router tables

ANDY STANDING

To get the best out of your router you really need a router table. This converts a standard hand-held plunge router into a static moulding machine, enabling you to tackle a range of jobs that would either be impossible to do by hand, or extremely dangerous to try



Prices quoted are target prices. Always shop around as there are often bargains to be had

10 STEPS TO SETTING UP

Set your table up carefully, and check all the settings before starting work. This should quickly become routine. Here is a suggested sequence.

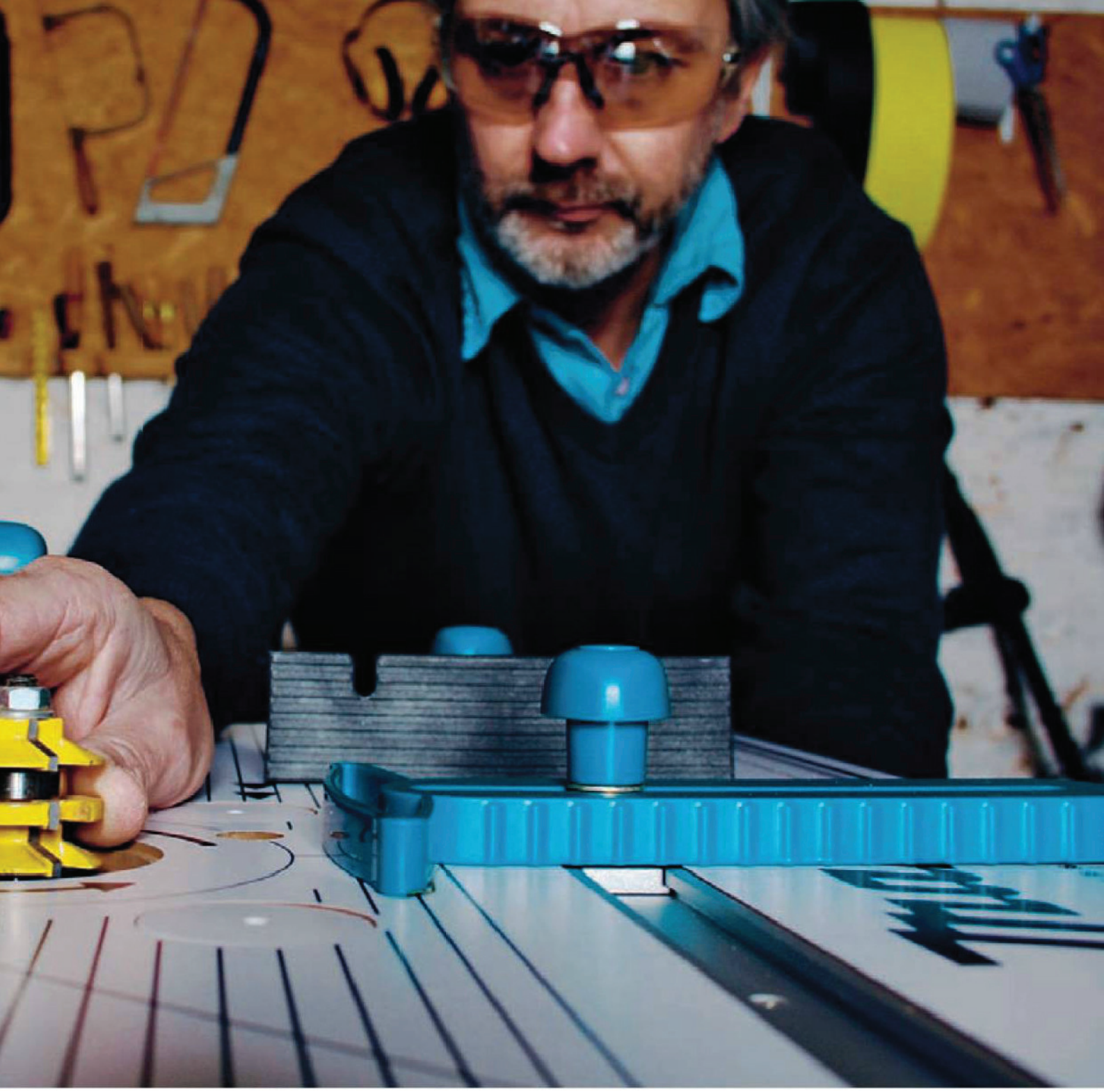
- Check that the router is disconnected, insert the cutter into the collet and tighten it securely. Aim to get at least three quarters of the shank into the collet.
- Fit the smallest possible insert ring to your table, and spin the cutter by hand to check the clearance.
- Adjust the fence cheeks to be as close to the cutter as possible.
- Set the depth of cut. Remember that several shallow cuts will produce a better finish.
- Set your fence, the hold downs and the guards.
- Check that the speed is set correctly for the cutter you are using.
- Spin the cutter by hand again for safety, and ensure that all the fence and guard settings are both screwed up securely.
- Connect the router to the mains supply and attach the dust extractor.
- As a final check, start the router and let it run up to speed for a moment. If all is well, start work.
- Remember to wear safety glasses and ear defenders when routing for any length of time.

Router tables come in a variety of shapes and sizes, from compact bench-top models to large floor-standing versions with sophisticated fences and guards. Obviously the larger models are better suited to heavier work, as their increased table area can support sizeable timbers without the danger of tipping, and their extra strength can accommodate the heaviest of routers. However, they take up more workshop space and they can be expensive.

Essential features

Table: Whatever size of table you choose, there are certain important points too look out for. Firstly the table must be flat, and the router plate must be strong enough to support your chosen router. If there is any unevenness, or sagging in the centre, accurate work will be impossible. Some tables are actually slightly domed around the cutter, which ensures accurate contact.

Fence: The fence must be easy to set and lock securely in place. Ideally both sides (the



cheeks) should be adjustable independently to compensate for cuts that remove the whole edge of the workpiece, such as planing cuts. Insert rings are another useful feature. These fit into the aperture in the table to reduce it to give as much support as possible around the cutter. This is particularly important when using small diameter cutters and narrow workpieces.

Guards: To some extent the fence itself acts as a guard around the cutter, but it is also a good idea to have sprung guards or featherboards fitted to the fence and the table. These help to hold the workpiece securely against the fence and the table, and to keep your hands well away from the danger area.

Height adjuster: Finally, when using a router table it's also worth fitting a fine height adjuster. These are available as accessories for most machines, or can sometimes be home-made. Without one, it's difficult and frustrating to make small adjustments to a heavy inverted router.

SAFETY

This is a prime consideration when using a table-mounted router; accidents can happen in a variety of ways. For a start, make sure that the table is on a level surface and will not tip. Set up roller support stands if you intend to machine long lengths.

When working on a router table, always feed the work against the direction of cutter rotation, so that the workpiece is being pushed back at you. If you try feeding from the other end, the cutter could grab the workpiece and throw it across the workshop, possibly pulling your fingers into the cutter at the same time.

PRICE: £299.95

RATING

Value
0 5

Performance
0 5

PROS

- Robust and well-finished
- Table slides smoothly and locks securely

CONS

- Takes some time to assemble
- Awkward router clamping system

SPEC SHEET

Table size	785 x 560mm

FURTHER INFO

Record
0870 770 1777
www.recordpower.co.uk

RECORD RPMS-R

The Record is a heavyweight design with a two-section table top. The front half is an alloy sliding table and the rear half is cast iron. It is supplied unassembled and takes some time to build. Due to its weight, it is advisable to have assistance when attaching the top to the base. The table sits on a substantial steel frame with a large shelf below. An NVR switch is mounted on the right-hand leg with a socket on the rear to connect the router.

A substantial fence is supplied with an integral dust hood and a pair of metal hold-downs. The fence cheeks are adjustable for width and also depth, so can easily be set to cope with planing cuts. The whole table hinges at the front and may be tilted open and supported on a pair of metal stays. The router can then be fitted by means of an adjustable clamping system, though this can be awkward and a second pair of hands is a great help.

Once the router is installed, it's possible to gain access to it by sliding the front half of the table back, which is a relief as the main table is heavy to open and the stays are tricky to engage. The cast iron top is 15mm thick around the router mounting area, and this could cause a problem with lack of plunge depth on some routers. However, Record have recognised this problem and the table is supplied with a collet extension which solves the difficulty.

Once the table is set up, you have a large working area with a substantial front sliding section. This has an adjustable mitre fence fixed to it and a sturdy material clamp. The sliding section can be locked in place when it's not needed. A set of two table inserts is provided, and the maximum diameter of cutter that can be used is 100mm.

In use the Record feels particularly robust and secure. The fence is solid and the two hold-downs are mounted on heavy metal brackets, providing excellent support. The cast iron table is smooth and well finished, and the table inserts sit flush within it. The sliding table provides a large area for clamping tenons and other applications. It slides smoothly on a pair of metal runners, and locks securely when not needed.

Summary

This is a robust workshop router table, capable of coping with heavy workpieces. The only drawbacks are the heavy pivoting table, which you won't want to open any more than is absolutely necessary, and a lack of cutter guarding. However it is a lot of table for the money.

The table top with its sliding table section

Hold-down being used for end-grain moulding

PRICE: £179.95

RATING

Value
0 5

Performance
0 5

PROS

- Components available separately
- Strong router plate
- Safe tight-fitting insert rings

CONS

- Plate needs drilling to accept router

SPEC SHEET

Table size	760 x 600mm

FURTHER INFO

Axminster
0800 371822
www.axminster.co.uk

AXMINSTER

The Woodworker RECOMMENDED

The Axminster router table is a very solid piece of kit. All its components are available separately, so you can buy as much or as little as you need. We chose to test the complete package with the heavy cast iron fence.

As with the majority of these tables, a fair amount of assembly is required. It stands on a steel frame with splayed legs and the table itself is made from 25mm MDF faced on both sides with a melamine laminate. A 19mm wide groove is machined across the front of the table to take a sliding mitre fence, which is available as an accessory.

The centre of the table is pre-machined to accept the router insert. This is a heavy duty plastic plate that has two removable insert rings. It sits snugly in the recess and is very slightly domed around the cutter aperture to ensure consistent accuracy. The plate must be drilled to accept your particular router, though the underside is marked with a number of concentric rings which greatly simplify the tricky process of centring the router prior to drilling the mounting holes.

Several fences are available to fit this table, depending on your budget and your preference. The cast iron fence supplied here is a substantial assembly with wooden faced cheeks. Both sides have their own micro adjusters with a range of 30mm. They are also adjustable for width.

Two sprung hold-downs are mounted on steel bars, and these provide secure and reliable pressure on the workpiece.

A cylindrical guard is fitted above the cutter which slides up and down. A dust extractor may also be connected to this, and a 100mm diameter dust hood is available to fit on to the rear of the fence.

Summary

The performance of this table is extremely good. It is easy to assemble and stable in use. It has a particularly good router plate that's strong enough to support the largest router, and has safe tight-fitting insert rings. The fence is also impressive, and is really a scaled-down version of the type found on spindle moulders. The table is well finished, and generously proportioned to give good workpiece support.

Overall this is a solid and reliable table with a good range of options and accessories. It is well made and suitable for both amateur and professional use.

The cast iron fence has wooden-faced cheeks

Both sides of the fence are adjustable for width

PRICE: £209.95

RATING

Value
0 5

Performance
0 5

PROS

- Well made, with good attention to detail
- Precise and easily adjustable fence
- Helpful centring pin

CONS

- No separate power switch for the router (but available as an accessory)

SPEC SHEET

Table size	680 x 520mm

FURTHER INFO

Axminster
0800 371822
www.axminster.co.uk

CMT PROFESSIONAL

The CMT router table is a simple and well-designed unit, incorporating a good range of facilities to satisfy the more ambitious user. It's sturdy and compact, with a solid base and a smoothly finished surface. It has a particularly good router mounting plate and a precise and easily adjustable fence.

The CMT arrives as a kit, but can be assembled in about 20 minutes with the supplied spanner and wrenches. It stands on a simple four-legged steel base with one adjustable leg to ensure that it will stand level on an uneven floor. The 25mm thick MDF top is bolted down onto a support frame and then the legs fit onto this.

The alloy router plate sits in a recess in the table top. It has a removable central ring, allowing cutters of up to 100mm diameter to be used. Both the inner ring and the plate itself are fitted with levelling grub screws to ensure that they sit precisely level with the table top.

You can install any size of router in this table, though for maximum versatility it makes sense to use a powerful unit with a ½in collet. When fitting routers, it can be tricky to get them positioned exactly in the centre of the router plate. The CMT table, however, is supplied with a centring pin that takes all the guesswork out of the process.

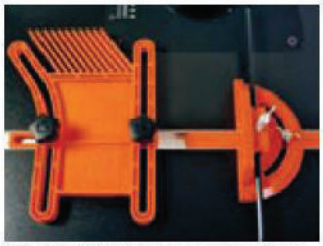
The fence is a substantial design with a thick alloy base, incorporating the dust extraction hood, and a pair of adjustable alloy sides. These are 90mm high, so provide good workpiece support. There is also a Perspex hold-down/cutter guard, which, again, is adjustable.

Several mounting positions for the fence are provided on the table so it can cope with a wide variety of cutter sizes. A sliding mitre fence is included and this has an adjustable end stop. It runs in an alloy-lined groove in the front of the table. There is also a plastic featherboard that can be locked in any position along the groove to hold the workpiece securely against the fence.

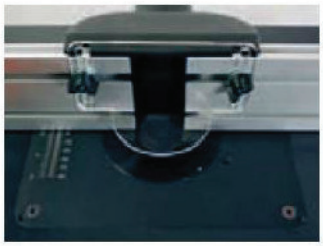
Summary

This is a solid and straightforward router table. It has been well made, with great attention to detail. I was particularly impressed with the levelling screws on both the router plate and its central insert. The fence is strong and easy to set, and the supplied mitre fence and featherboard are useful additions. The only thing lacking is a separate power switch to control the router. However this is available as an accessory. Overall this is an impressive table that should satisfy the most discerning user.

The adjustable router plate



The featherboard and mitre guide



Fence with integrated cutter guard

PRICE: £396

RATING

Value
0 5

Performance
0 5

PROS

- Just about everything

CONS

- Hardly anything!

SPEC SHEET

Table size	650 x 550mm

FURTHER INFO

Trend
0800 487363
www.trendmachinery.co.uk

TREND PRT

The Woodworker BEST ON TEST

The latest incarnation of Trend's Professional router table includes just about everything you need for serious routing. It has a good-sized alloy table with a set of leg extensions. It may be used either bench-mounted without the leg extensions, or floor-standing. In both configurations the legs are adjustable to compensate for any surface unevenness.

The table top is well equipped, with four separate grooves to accommodate the mitre fence or pressure guards. There are three positions for mounting the fence and the central panel is removable to make fitting the router an easy job. The table is specifically designed for routers with the Trend base configuration but can be re-drilled to suit other machines. The test table came equipped with the Trend T11 router, which is basically a modified De Walt 625. This has a built-in router-raising mechanism which can be operated from either above or below the machine. Also the base has been altered so that a quick release system may be used for rapid fitting to and removal from the router table. Both these features are highly recommended. The table top is drilled to allow the height adjuster handle access to the T11 base when it is mounted.

The fence is an impressive design with high supportive alloy cheeks, adjustable for width. A central cutter guard is incorporated, and also a hold-down. Both these are mounted on a hinged central panel which can be flipped open for easy cutter access. A 57mm dust extraction port is mounted on the rear of the fence. A set of four insert plastic insert rings is included and the maximum cutter aperture is 90mm, which should be enough for anyone.

A sturdy metal mitre fence is supplied which is fully adjustable and has fixed stops at all the most common positions. It is also drilled to accept a wooden false fence, if required. There is also a set of plastic side pressures that can be locked into one of the mitre slots for added support.

A standard NVR switch is mounted on the right-hand side of the table, and this is connected to a power cable and a trailing socket for connecting the router. As a final thought the PRT also includes a Velcro strap to hold your router power switch on if it cannot be locked in place.

Summary

The Trend is a particularly easy table to set up and use. The components are all well made and smartly finished. The fence adjusts smoothly and locks firmly in position. The guards and hold-downs are well designed, the overall quality is first rate and it is supplied with all the standard accessories that you will ever need. The whole unit is large enough to provide good workpiece support, while still being light enough to transport easily. Overall this is a highly impressive table.


Adjusting the router height


Router secured with QD clamps

PRICE: £149.99

RATING

Value
0 5

Performance
0 5

PROS

- Compact yet well detailed
- Accepts almost any router

CONS

- Nothing significant

SPEC SHEET

Table size	457 x 800mm

FURTHER INFO

Makita
01908 211678
www.makitauk.com

MAKITA P66226

The Woodworker BEST VALUE

The Makita table is a compact yet comprehensive tool. It is intended to be bolted or clamped to a workbench of a suitable height. It works well when clamped onto a Workmate. The table stands on four metal legs and there is an NVR switch on the front with an integrated socket and a very short power cable.

It has an MDF table with a laminated top. There's an alloy track set into it to accommodate the sliding mitre fence and the plastic featherboards. The top surface is particularly well marked, with a metric scale along the front and clear angle markers. At the rear a series of parallel lines 10mm apart make it easy to set the fence and keep it lined up.

The fence itself is made from a hard plastic-type material and seems very solid. It has a pair of adjustable side cheeks and a large hinged plastic bubble that covers the cutter. At the rear is a dust extraction port. A set of three plastic featherboards is supplied and these can be used as hold-downs on the fence itself or alternatively on the table surface to hold the work against the fence. A plastic sliding mitre fence is supplied which is ideal for tenon cutting and end-grain work. The cutter hole is rebated and a set of insert rings is supplied to give maximum support around the cutter. The maximum cutter diameter is 70mm.

You should be able to fit almost any router into the Makita, which has a simple and efficient router mounting system with a choice of fixing methods. A circular adapter plate is supplied which can be fitted to the base of many routers after the original plastic baseplate has been removed. This then allows the router to be bolted directly to the underside of the table.

Alternatively, you can use the simple clamping system. This is fast and highly effective. A centring insert is fitted into the table recess and a plastic locating pin is inserted into the router collet. With the table inverted the router may be positioned and then clamped in place using the four clamps. This means that the router can be quickly removed for hand-held use when required.

Summary

The Makita is a rewarding table to use. The surface is good and the fittings are strong and secure. The fence is easy to adjust and locks reliably in position. Safety is well catered for with efficient hold-downs and a convenient and secure cutter guard. Overall, this is an impressive table for an attractive price.


The power cable is very short


Adjusting the hold-down


The plastic sliding mitre fence


Installing the router in the table

PRICE: £94.89 table
£91.99 stand

RATING

Value
0 5

Performance
0 5

PROS

- Can be used in Triton Workcentre
- Easy to dismantle and transport
- Quick and reliable router fitting

CONS

- Nothing significant

SPEC SHEET

Table size	555 x 695mm

FURTHER INFO

Triton
01376 339670
www.tritontools.co.uk

TRITON

The Woodworker RECOMMENDED

The Triton router table is designed to be used in conjunction with one of their Workcentres, or can be used alone and mounted on its own dedicated stand. As with all Triton products, a great deal of thought has gone into the design of this table to make it a competent and versatile piece of equipment. Both the stand and table need a fair amount of assembly and adjustment before use. However, once completed you are left with a substantial router table equipped with all the accessories that you could possibly need.

The table itself is a rather unusual design. The rear half is solid; this houses the router plate and also carries the fence. The front section of the table has an open area with a guide rail on either side. An MDF board slides along these rails and is used either to carry the adjustable mitre fence or, if locked in place, to support the side pressure arms that hold the workpiece against the fence when edge moulding.

After assembly, the first job is to mount the router in the router plate. No drilling is necessary here as the router is held in place with a pair of adjustable clamps. A centring bit is also included which helps you to fit the router accurately.

The fence is steel with adjustable MDF cheeks and runs in two grooves in the table. Though the fence sides are not independently adjustable, shims are supplied to slide behind the outfeed cheek to build it out for planing cuts. A transparent guard is fitted above the cutter aperture, and a supplied vacuum pipe attaches to this. Two hold-downs are fitted to the top and a pair of micro adjusters can be fitted behind the fence to help with fine setting.

Summary

The Triton system works well. Although some of the parts appear a little flimsy, they turn out to be perfectly robust. The hold-downs and side pressures do their job, and the sliding plate moves with commendable smoothness and reliable accuracy. The whole table was easy to set up and a pleasure to use. When coupled with the excellent Triton router it makes a great combination. Further accessories are available to allow biscuit jointing and finger jointing on the table, and there is also a kit for converting it to an inverted jigsaw table.

Overall this is a highly impressive tool. It performs well, and is easy to use. It has good guarding and there's the bonus of its easy portability.

WW VERDICT

There's a good selection of tables here and all of them will produce perfectly acceptable results. For those on a limited budget, the **Makita** is an excellent buy with its comprehensive features and reliable performance. Moving up the scale, the **Axminster** is a very attractive package which can be bought in stages to assemble an impressive table. The **Triton** is also a good performer, particularly when used with a Triton router.

For those who need to machine large heavy workpieces, the **Record** offers a sizeable solution, though it is not an easy table to move around. Finally, the **Trend** will satisfy the most discerning user. Though it isn't cheap, it is beautifully made, versatile and reliable in use. It is obviously ideal for use with a Trend router, though any make of router can be fitted.

TAYLOR'S TESTBENCH

IAN TAYLOR

A round-up of all the latest tools, gadgets and equipment for your workshop

DAKOTA T-TRACK BOLT KIT

The Rutlands catalogue carries an interesting selection of accessories for making your own router or saw table jigs and fixings. This set of T-Track bolts allows you to clamp all sorts of jigs and accessories to standard ¾in T-track. The set comes with two aluminium extrusions that slide easily in the track. Both have a countersunk M6 threaded hole to take a mounting bolt; the kit comes with two bolts and clamping knobs.

One plate has a separate tapped hole for an Allen grub screw, allowing you to clamp it up tight to the track to act as a stop. The other has an unthreaded hole which allows you to screw up from beneath into a workpiece. Together they give you a circle-cutting jig. Clamp the stop at the desired position, slide the workpiece up to it and rotate it into the router cutter to give a circle of your chosen diameter.

The clamps hold featherboards securely

They are also ideal for fixing clamps or feather boards. I tried them out with my own shop-made feather boards, and they clamped them down very tightly. Efficient workholding is a great help for getting good results, but more importantly it makes for safer working. So these are valuable aids if you do a lot of table work – a nice accessory pack at an economical price.

PRICE: £4.95

RATING

Value 0 5

Performance 0 5

PROS

- Versatile clamping aids

CONS

- Nothing obvious

FURTHER INFO

Rutlands

01629 815518

www.rutlands.co.uk

HANSEN CARPENTER'S PENCIL SHARPENER

PRICE: £4.30

RATING

Value 0 5

Performance 0 5

PROS

- Gives your pencils a sharp point, effortlessly

CONS

- Leaves the lead poorly supported

FURTHER INFO

Axminster Power Tool Centre

0800 371822

www.axminster.co.uk

Carpenter's pencils are ideal in the workshop. Since they're rectangular rather than round, they won't roll off your workbench. But they can be awkward to sharpen, because they don't fit standard sharpeners. Well, Axminster now have a solution. This pencil sharpener has an extra wide mouth which allows it to handle carpenter's pencils as well as standard ones. It comes with two pencils to get you started.

It worked very well, producing a sharp tip and a stream of unusually shaped shavings! It's tempting to keep sharpening long after you have a sharp point, because the cutting action is so satisfying, but don't be tempted unless you want to end up with a useless pencil stub.

So if you like a pointed tip on your pencil, this is a useful tool to own. However, sometimes a chisel-shaped tip is more useful, for example for marking up joints before cutting. You can give the point a razor edge by simply rubbing it on fine sandpaper, to give very fine cutting lines. Alternatively, you could just use a sharp knife.

CROWN PLANE HANDLES

PRICE: £15.57

RATING

Value 0 5

Performance 0 5

PROS

- Gives your planes a traditional feel

CONS

- As with all spare parts, quite expensive

FURTHER INFO

Tilgear

01707 873434

www.tilgear.net

A lot of modern planes are fitted out with moulded plastic handles. These aren't nearly so nice to use as traditional wooden handles and they can break quite easily. So, if you want to indulge yourself with the luxury of real wood handles, or simply need to replace broken ones, you might want to get your hands on a pair of these.

They're available from the Tilgear catalogue. They come with a length of threaded bar in 'Sheffield plane thread' to fit some older planes. I didn't need this to refurbish my Stanley No 4 plane, because the threaded rods of the original were still perfectly functional and in any case had a different thread.

The handles didn't fit my plane directly, but needed a little bit of fine tuning. I had to drill the clearance holes at the top of each handle a little bit deeper, and slightly open out the holes in the bottom of the rear handle. The catalogue notes that a little bit of adjustment might be needed.

MAKITA BPT350 CORDLESS PIN NAILER

This new nailer from Makita is designed for on-site work and flexible pinning without the awkwardness of cables or air lines. It comes in a lightweight package weighing only 2kg and is powered by a 3Ah 14.4V Li-ion battery. The pack comes with two batteries and an intelligent fan-cooled fast charger that does the job in just over 20 minutes.

The nailer uses 0.6mm headless pins, from 18 to 35mm long, and a full magazine can take 100 pins.

Safety is a key design feature. A safety latch has to be depressed before the trigger can be pulled. The unit won't fire 'dry' – if there are less than three pins in the magazine – to protect the mechanism. However, there's no safety switch on the tip, so the unit can be fired without being in contact with the workpiece.

There's a removable soft rubber tip to avoid damaging the workpiece when pinning delicate surfaces. The nailing depth can be adjusted by clamping the tip of the tool in the desired position. And finally, there's a lamp that illuminates the workpiece whenever the safety latch is depressed.

In operation the nailer worked very smoothly. It's quiet, with very little recoil, so it should be comfortable in continuous use. It drove home 25mm pins effortlessly in my test pinning of some ash moulding. This is an industrial tool rather than one for the home workshop. But for an application involving a lot of pinning and fixing of mouldings, or second-fit work in the building industry, this would be worth considering.

PRICE: £380.70

RATING

Value 0 5

Performance 0 5

PROS

- Effective mobile pinning

CONS

- An industrial tool at an industrial price

FURTHER INFO

Makita UK

01908 21167

www.makitauk.com

The soft tip protects delicate surfaces

BEHLEN MASTER PICKLING STAIN

This stain is designed to give a pickled or whitewashed appearance to timber. This is especially marked on open-grained wood where the pigment lodges in the pores and turns them white.

To apply it you simply wipe it onto sanded timber and rub off the excess. You can apply a second coat after four hours, if needed. Then allow it to dry for 24 hours before top-coating it. It's recommended that a water-based topcoat is used as a protective finish. Oil-based finishes give a yellow tone that can detract from the stain's white finish.

In my limited tests on oak, I found this very easy to apply. Compared to an untreated comparison piece given the same water-based topcoats, a single coating of the pickling stain gave a noticeably whitewashed appearance, rather than the orange-yellow shade of the untreated oak. I wouldn't say the result with one coat was dramatic, but the pickling stain gave a subtle whitish tone to the treated samples which would look good in a finished piece.

Simply wipe on and remove excess

PRICE: £24.00 (1.1 litre)

RATING

Value 0 5

Performance 0 5

PROS

- Very easy to apply

CONS

- Quite expensive if you only want a small amount

FURTHER INFO

Behlen UK

0871 9100 900

www.behlen.co.uk

ERBAUER ERH005DDH DRILL DRIVER

PRICE: £79.99 (1 battery) £99.99 (2 batteries)

RATING

Value 0 5

Performance 0 5

PROS

- Light and compact

CONS

- Lower spec than some of the competition

FURTHER INFO

Screwfix

0500 414141

www.screwfix.com


Comfortable drilling at capacity

This is a new addition to the Screwfix range of Erbauer cordless tools, introducing Li-ion battery technology for the first time. This drill comes with a 14.4V 1.5Ah version.

These batteries have several advantages. First, they are lighter than previous types; this drill weighs in at a trim 1.5kg. Second, they don't display the same memory effects as Ni-Mh or Ni-Cd batteries, so you can recharge them before they are fully discharged.

The version I tried out comes with only one battery, but there is also a two-battery version in the range. Charging time is 3-5 hours, so if you have a lot of work to do, the model with two batteries (ERH008DDH) might be rather more useful.

The keyless chuck is 10mm capacity, and the handbook quotes the maximum capacity in wood as 18mm. It has a single-speed gearbox with a maximum speed of 550rpm. The torque ring has 16 settings, with a maximum torque of 15Nm. So this is aimed at the lighter end of the drilling and driving range.

It worked well in my test runs – drilling at maximum capacity was effortless, with no sign of straining. This is a nice drill-driver, but with a fairly limited specification compared to some of the professional units that are available for a bit more money.


The keyless 10mm chuck


The 1.5Ah Li-ion battery

VERITAS MEDIUM SHOULDER PLANE

You know with some tools that they're going to be good as soon as you pick them up. This shoulder plane is one of these. The machining is excellent, with nicely rounded edges on the top of the casting. But the other design aspects lift this above the ordinary.

The rotating brass knob on the top of the blade clamp adjusts to fit comfortably between the thumb and forefinger and can be locked in place once you have a preferred position. The hole through the casting is convenient for your second or third finger and gives you a very good grip on the plane, allowing a lot of control. An adjustable mouth can be closed right down for very fine cuts. The blade position can be controlled very precisely by grub screws in the sides of the casting.

As supplied, the blade is very slightly wider than the body of the plane; some users might prefer to grind it down to align exactly with the sides, but that is really fine-tuning. The A2 tool steel blade took an excellent edge.

Beautiful brass control knobs

Closing the adjustable mouth

Cutting crisply and cleanly

How did it work in practice? The results were excellent. You can usually tell when a plane is cutting correctly by the noise it makes, and this had a crisp sound when trimming a tenon, both across the grain and on the end grain of the shoulder. The results lived up to expectation too. This is a tool I'd love to have in my workshop!

PRICE: £132

RATING

Value 0 5

Performance 0 5

PROS

- Comfortable to use, and an excellent performer

CONS

- Not cheap, but quality costs

FURTHER INFO

Brimarc

0845 30 9100

www.brimarc.co.uk

DRAPER EXPERT TOOL BAG

If you need to move your tools around, you'll need a robust toolbag and this new item from Draper should fit the bill. It comes with a rigid impact-resistant plastic base and is made from tough water-resistant polyester fabric with a PVC backing. It has 13 internal pockets and eight external ones. The opening is framed and the handles are reinforced with rope.

So this is one tough bag. Its overall dimensions are 420 x 230 x 290mm, so you should be able store a good few tools in here and be confident that the contents will be well protected at the same time.

PRICE: £11.50

RATING

Value 0 5

Performance 0 5

PROS

- Safe and economical carriage for your valuable tools

CONS

- None

FURTHER INFO

Draper Tools

02380 494333 for stockists

www.draper.co.uk

ON TEST

SCHEPPACH
Basato 1 bandsaw

GORDON WARR

Many woodworkers have restricted workshop space, so this compact bandsaw from Scheppach could be the spacesaver you need. Gordon Warr puts it through its paces

PRICE: about £120

RATING

Value	0	5
Performance	0	5

PROS

- Solid frame
- Easy blade adjustment
- Simple control of height of upper blade guard
- Quiet running

CONS

- Absence of mitre fence as standard

SPEC SHEET

Motor	300W
Table size	300 x 300mm
Max depth of cut	100mm
Throat depth	195mm
Cutting speed	1480m/min
Blade length	1490mm
Blade width	3.5-12mm
Dust port	40/100mm
Weight	30kg

FURTHER INFO

NMA (Agencies) Ltd
01484 400488
www.nmauk.com

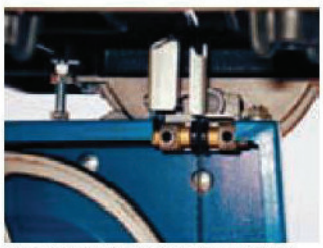
Although a table saw is likely to be the first choice of any machine to have in a workshop, a bandsaw follows on very closely. Indeed, the turner and the toymaker would put the bandsaw at the top of the list. Many operations you can do on a table saw can be executed on the bandsaw as well, but other functions can be done only on one saw or the other.

Scheppach are German manufacturers of quality machines, including circular saws, mitre saws, fretsaws, planers and lathes. They already make several bandsaws, and have now added the Basato 1 to the range. It's aimed primarily at the amateur woodworker who wants a sound machine that doesn't cost a fortune and doesn't take up too much workshop space. This saw has a footprint of 475 x 440mm, so fits the bill admirably.

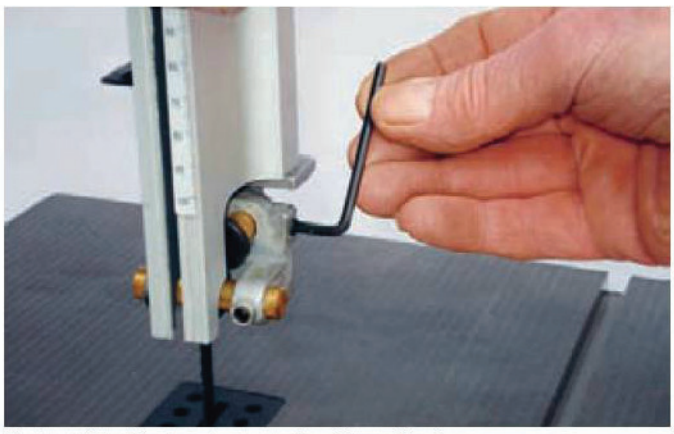
Welded steel construction

The saw frame is of welded steel construction, as is the door. This is a one-piece unit which locks closed at the top and bottom, and is operated by an Allen key. It's now a CE safety requirement that bandsaw doors must either have a micro switch that cuts out the motor when the door

The blade guide and guard are readily adjusted



The lower blade guard assembly below the table



Blade guide adjustments are made with an Allen key


This knob controls the height of the blade guide


The blade control knobs are on the upper rear of the body


The machine features dual-size dust outlets


The table will tilt up to to 50° to the right


Sawing wood at close to the maximum thickness

is opened, or must require the use of a tool to open them.

Tensioning and tracking

Te upper wheel can be adjusted in two usual ways – by tensioning and tracking. The controls for these are knurled knobs, with the tensioning one at the top of the machine and the tracking one at the rear (this knob also has a locking nut). Also at the rear of the body is the height adjustment for the upper blade guard and blade guide assembly.

Guiding the blade

The blade guide system is a critical part of all bandsaws. While this varies in detail from one machine to another, its purpose is to keep the blade running vertically and to prevent any sideways movement. It must also restrain the blade from moving backwards and thus keep it running where intended on the wheels.

On this saw, the two side guides are roller bearings and are easily adjusted by hand once they have been slackened off using an Allen key. The rear guide is similar; again it is positioned so the side of this faces the blade. This is readily adjustable so as to be just clear of the blade when this is running but not cutting. All three bearings are mounted on a small bracket, enabling overall adjustment in a forwards/backwards direction as may be needed when blades of different widths are fitted. The whole of this assembly is repeated below the table.

Tilting table

The table of this Basato machine is cast iron, and mounts onto the body of the saw on a quadrant bracket where it is firmly held by four screws. It will tilt up to 50° to the right, and is locked by a large knob. There is a protractor scale with adjustable pointer to the tilting mechanism, and a return stop to ensure a quick return to a right angle setting with the blade.

Fence details

There is a rail along the front of the table which acts as the support for the fence. This rail is secured to the table by four wing screws which need only be slackened a little to allow the rail to be swung clear when a change of blade is needed. There is a scale along the top of the rail, with a simple adjustment facility.

The alloy fence extends fully across the table, and locks to the rail by a lever which operates a cam tightening clamp. A see-through marker on this fence-mounting component makes setting of the fence position easy. A mitre fence is not p§rovided, but there's a slot to the right hand side of the blade for this, which is available as an extra.

Basic sawing

The principal use of the bandsaw is the sawing of shaped edges and curves (only external ones, of course). This is where I started my trials, working freehand to test the performance of the blade and my own ability to follow the cutting line.

I found that the maximum thickness which could be cut comfortably was around 75mm in softwood; over this thickness, performance slowed noticeably. In reality, most of the sawing in the average workshop will be of material 50mm or less in thickness. The maximum thickness is also dependent on the most appropriate blade being fitted, and for this to be in good condition.

I then tilted the table for some bevel sawing. Again this was completed freehand, but apart from the need to hold the wood more securely to stop it slipping down the table, the technique was the same.

Ripping time

It was now time for some ripping. Here I cut various pieces of hardwood and softwood, narrow and wide, and with the fence positioned on both sides of the blade. For sawing fairly wide material, the fence normally has to be on the left, depending on the dimensions required.

Next came some bevel ripping. Here the fence must be to the right so as to fully support the wood and prevent gravity from taking over.


Freehand bevel sawing with the table tilted

WW VERDICT

You cannot expect the same performance from a scaled-down bandsaw as one twice its size, with twice its capacities and twice its power. This machine discharged its duty as well as I expected… perhaps even better. It's easy to adjust, changing the blade presents no problems, it runs quietly, and it has a reassuring feel of solidity about it. Above all it's very well finished, and the welding to the steel frame is about the best I have seen on any machine.

HAND TOOL CHECKLIST ON TEST
1: Tenon saws

Toolstation Silverline 27111

Guide price	£2.60
Cross or rip cut	cross
Length	254mm
Teeth per inch	12
Handle	Rubberised plastic
Contact	Toolstation 0808 100 7211 www.toolstation.com

In our opinion

Bargain-priced saw with good handle comfort and great balance, light in weight and gives a smooth, accurate cut with a high degree of control. Extraordinary value

Rating ★★★★★

Screwfix 17317

Guide price	£3.39
Cross or rip cut	cross
Length	254mm
Teeth per inch	13
Handle	Plastic
Contact	Screwfix 0500 414141 www.screwfix.com

In our opinion

An uncomfortable handle, but good balance and an acceptable smoothness of cut. Struggles a bit when ripping but cuts tongues and shoulders with acceptable cleanness. Good value

Rating ★★★½

Toolstation Silverline 78743 Tri-cut

Guide price	£3.58
Cross or rip cut	cross
Length	254mm
Teeth per inch	12
Handle	Rubberised Plastic
Contact	Toolstation 0808 100 7211 www.toolstation.com

In our opinion

For such a low price this saw has a very comfortable handle and excellent balance, and gives a very smooth cut with lots of control. Struggles a bit when ripping

Rating ★★★★½

Irwin Expert Jack

Guide price	£9.04
Cross or rip cut	cross
Length	300mm
Teeth per inch	13
Handle	Rubberised lastic
Contact	Irwin 0114 244 9066 www.irwin.co.uk

In our opinion

A well-designed lightweight tenon saw that gives a smooth cut with lots of control and a fine edge in both rip and cross cut. The saw has a good magnetic teeth guard for added safety. Excellent value

Rating ★★★★½

Stanley Fatmax

Guide price	£9.99
Cross or rip cut	both
Length	300mm
Teeth per inch	11
Handle	Rubberised plastic
Contact	Stanley Tools 0114 244 8883 www.stanleyworks.co.uk

In our opinion

Offers a high degree of comfort along with very good balance and easily controlled cutting, but is a trifle heavy. Gives an excellent fine edge on both tongue and shoulders; the sharpest on test

Rating ★★★★★

Spear & Jackson Predator

Guide price	£15.08 / £17.06
Cross or rip cut	cross
Length	250 and 300mm
Teeth per inch	15
Handle	Rubberised plastic
Contact	Spear & Jackson 0114 281 4242 www.spearandjackson.co.uk

In our opinion

The rubberised plastic handle was most comfortable on test, with excellent balance giving a smooth and easily controlled cut and an excellent accurate edge to both tongues and shoulders

Rating ★★★★½

Tenon saws are, as the name suggests, used for cutting tenons – the 'tongue' parts of mortise-and-tenon joints. A tenon is formed by reducing the cross-section of the wood in thickness (and sometimes also in width). The cuts across the grain form the shoulders, and the cuts along the grain form the tongue.

A good tenon saw can cross-cut and rip-cut accurately. We took the saws along to Mick O'Halleron, who put them through their paces. He assessed the performance of the saws by using each to form a simple tenon using 50 x 25mm hardwood. He also found that a comfortable handle and good balance played a large part in accurate sawing of the wood.

Draper 53046

Guide price	£6.33
Cross or rip cut	cross
Length	300mm
Teeth per inch	13
Handle	Plastic
Contact	Draper Tools 02380 494333 www.draper.co.uk

In our opinion

Affords a good degree of comfort, the balance is a trifle front-heavy albeit not over-weighty. Average smoothness of cut and gives a good sharp fine-edged shoulder, but ripping is hard work

Rating ★★★½

Irwin Plus 1360

Guide price	£6.49
Cross or rip cut	cross
Length	254mm
Teeth per inch	13
Handle	Rubberised plastic
Contact	Irwin 0114 244 9066 www.irwin.co.uk

In our opinion

Another low-cost high-value product with a comfortable handle, great balance and a smooth easily-controlled cut giving a very fine edge to the wall and shoulders

Rating ★★★★

Draper 64664 Diamond Cut

Guide price	£8.48
Cross or rip cut	cross
Length	255mm
Teeth per inch	13
Handle	Plastic
Contact	Draper Tools 02380 494333 www.draper.co.uk

In our opinion

Uncomfortable handle, but reasonable balance and light weight. On the reverse stroke the saw judders rather badly. Cuts good shoulders but labours when ripping tongues

Rating ★★★

Bahco Superior 3180

Guide price	£18.26
Cross or rip cut	cross
Length	360mm
Teeth per inch	11
Handle	Rubberised plastic
Contact	SNA Europe (UK) 01709 731731 www.bahco.com

In our opinion

Rather a heavy saw, poor balance, front heavy, blade too large for fine work giving problems with accuracy, difficult to produce a fine edge to shoulders and lacks feel

Rating ★★★

Spear & Jackson B23

Guide price	£23.79
Cross or rip cut	cross
Length	300mm
Teeth per inch	15
Handle	Wood
Contact	Spear & Jackson 0114 281 4242 www.spearandjackson.co.uk

In our opinion

Poor handle comfort, with a front-heavy balance, but gave accurate results when cross and rip cutting, giving a good fine edge.

Rating ★★★½

Pax 1776 tenon saw

Guide price	£67.80
Cross or rip cut	cross
Length	300mm
Teeth per inch	13
Handle	Beech
Contact	Thomas Flinn 0114 272 5387 www.flinn-garlick-saws.co.uk

In our opinion

Excellent comfort level and balance for this high-class tenon saw, a bit on the heavy side but cuts beautifully smoothly with great user control. Produces very accurate tenons… at a price.

Rating ★★★★

PRICE: £169

RATING

Value 0 ■■■■■ 5

Performance 0 ■■■■■ 5

PROS

- Cast iron table
- Easy height adjustment
- Good collet feature

CONS

- No lead-in pin
- Limited effect of pressure pads

SPEC SHEET

Motor	1500W
Speed	8-24000rpm
Table size	610 x 360mm
with extensions	1030 x 360mm
Fence (closed)	620 x 75mm
Height adjustment	0-40mm
Table inserts	32/47/55mm
Collets	¼ and ½ in
Weight	30kg

WOODSTER
BS52 router table

ON TEST

GORDON WARR

Woodster refer to this as a spindle moulder, but Gordon Warr reckons it's a router table and tested it accordingly

Is this a power tool or a woodworking machine? It can be thought of as a router with its own table, or as a router table with its own built-in power source, but the makers refer to it as a spindle moulder. The use of a router in the stationary mode has continued to increase in recent years, and this is a unit dedicated to this method of working.

Woodster are part of the Scheppach group, whose machines are aimed at both the professional and the amateur. This machine is really aimed at the latter, although it embraces all the refinements the former would demand.

Essential features

It's manufactured from a combination of pressed steel, aluminium and plastic, with the all-important table being of cast iron. The table is grooved for the mitre fence provided, although this is of fairly basic design. On the plus side, though, there are recessed graduated scales to both sides of the centre aperture, making setting the position of the fence easy. The centre aperture has a series of plastic rings, giving a choice of four diameters. These are best removed when you're changing a cutter.

Two collets

Both ¼ and ½in collets are included. These are of an unusual design, in so far as they both have their own captive nut by which they are mounted onto the motor spindle. Note that the shanks of router cutters are usually in imperial sizes, and are likely to remain so for the foreseeable future. The instructions say that the maximum cutter diameter must not exceed 25mm, but if a larger one is fitted then several cutting passes must be made.

Adjusting the cutter height

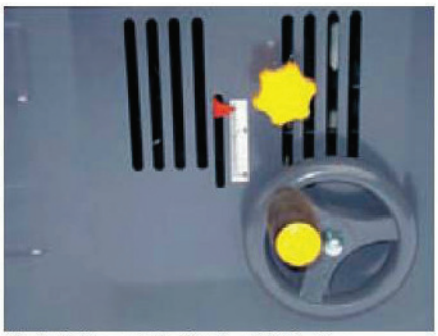
The cutter height adjustment is effected by rotating a handle at the right-hand end of the body, with a scale to indicate the adjustment gained. A locking knob close to this handle must be slackened and tightened as the height adjustment is made. This doesn't simply lock the setting made, but ensures that the motor unit is locked positively and so eliminates possible vibration.

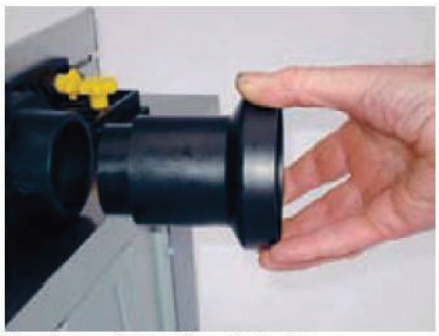
The on-off switch is at the front of the body; it's the type where the cover can be pressed to switch off the power supply.

Using the fence

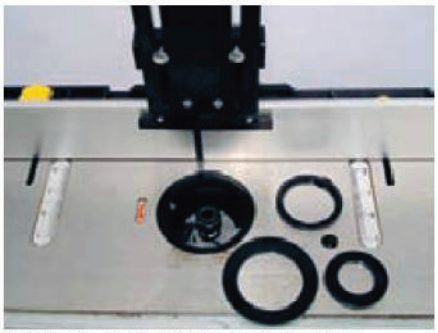
The fence is secured to the table with a bolt and large knob to each side, with plenty of front-to-back adjustment. Each half of the fence can be adjusted laterally to suit the size of cutter being used, along with the nature of the cut being made, while the left-hand half can also be adjusted front to back by a small amount.

This feature is used when the whole edge of a component is being profiled, providing full support to the wood once the


The height control wheel and indicator


The dust outlet nozzle and adaptor


The two-part fence viewed from the rear


A wide range of table inserts is provided


The clear plastic cutter guard


Changing cutters is quick and easy

edge has passed the cutter. This is a feature not always seen even on more expensive machines. To remove the fence completely, the rear panel has to be detached first.

The centre of the fence body incorporates the dust extraction facility. This has a diameter of 70mm, with an adapter being provided to enable a 100mm diameter hose to be connected.

Instant improvisation

The table is not provided with a lead-in pin. Some kind of guide is necessary to control the wood as it makes contact with the cutter when curved or shaped work is being tackled, whether this includes a template or not. However, I quickly made a wooden one, and found I could secure this to the table using the slot normally used for holding the fence, using the same bolt and knob that secure the fence.

Keeping up the pressure

Pressure pads are provided to both the top and the front; these also act as guards. They have to be carefully adjusted, though, as the pressure exerted is not spring-assisted. The horizontal pressure pad locates in a fitting which secures to the front edge of the table; this has to be removed when the whole of the table needs to be used without restriction.

The pads cannot always be used; it depends on the size of the wood and the nature of the cut being made. When this is the case, the plastic guard provided can be fitted; this is designed to lift just sufficiently for the workpiece to pass beneath it.

The Woodster at work

Moulding edges is the most common use for a router, whether it's in a table like this one or is hand-held, and this is where I started my trials. Rebating an edge was next, although this is really an identical process to edge moulding. Grooving followed, and here I found that a wide and deep groove was best tackled by making a couple of passes. Indeed, I made three passes with the same cutter and setting when hardwood was the test piece.

Fencing time

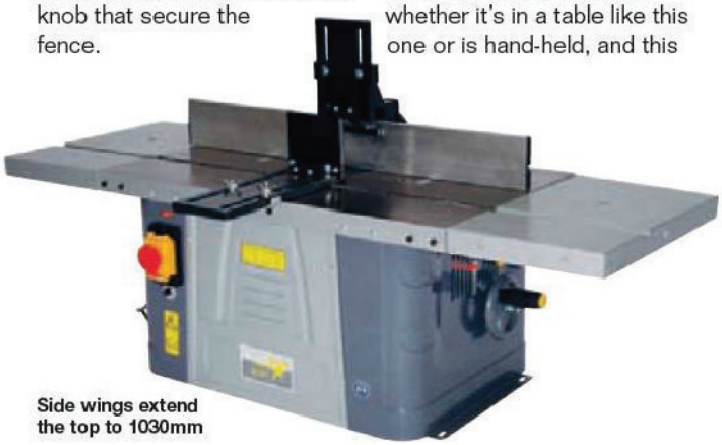
When using the fence to guide the work, I found that the graduated scales built into the table top were very useful to gain the exact position required for the grooves. However, the fence doesn't have to be parallel with anything for such cuts.

Now for some trials with the mitre fence. Although this is a little on the lightweight side, it functioned quite well, again providing that too heavy a cut wasn't attempted. Here, though, the fence must be set exactly parallel to the groove in which the mitre fence engages, as this determines the extent of the cut as the wood is moving forwards.

Two final tests

I tackled some curved work next. Here the lead pin is essential to control the wood at the start of the cut. My simple makeshift pin worked perfectly satisfactorily, and it was easy to position and lock the table.

My final test was to rebate the inner edges of an assembled frame. A rebating cutter is needed for this, as the width of the cut can only be controlled by the diameter of the bearing fitted, but the depth is readily governed by the projection or height of the cutter.


Side wings extend the top to 1030mm

FURTHER INFO

NMA (Agencies) Ltd
01484 400488
www.nmauk.com

WW VERDICT

So did this machine perform as expected? It isn't designed for taking heavy cuts in dense hardwood, and has to be used with sensitivity and within its limits. Changing cutters is very easy, and the height adjustment works to perfection. Some parts could be made more robust, but that comment applies to all machines except the industrial heavyweights. The quality and performance of this machine are more than acceptable at the price.

MACHINERY CHECKLIST

7: Biscuit jointers

MAKE & MODEL		FEATURES			
BISCUIT JOINTERS					
		Power (watts)	Weight (kg)	Accessories	Price
Draper	Biscuit Jointer	800	3.3	Storage case dust bag, hex wrench	£44.95
Einhell	BDF 850	800	na	Storage case, dust bag, spanner, pencil and tape measure	£47.99
Freud	JS 100	710	2.8	Storage case, dustbag, spanners	£84.99
Freud	JS102	710	2.8	Storage case, dustbag, spanners, selection of biscuits	£125
Trend	T20	710	2.8	Storage case, dustbag, spanners, selection of biscuits	£139.95
Casals	JS102	710	2.8	Storage case, dustbag, spanners, selection of biscuits	£170
Milwaukee	BJ 710	710	2.8	Plastic storage case, dustbag, extraction adapter, blade changing spanner	£179
De Walt	DW 682K	600	2.8	Plastic storage case, dustbag, extraction nozzle, blade changing spanner	£179.95
Bosch	GFF22A	670	2.9	Storage case, dust bag, spanner	£189.95
Makita	3901	590	3.0	Plastic storage case, dustbag, extraction adapter, blade changing wrench	£189.95
Mafell	LNF20	750	3.0	Systainer storage case, dustbag, extraction nozzle, blade changing spanner	£220.08
De Walt	DW932K	18v	3.7	Storage case, charger, dust bag, spanner	£288.87
Lamello	Top Twenty	705	3.3	Storage case, selection of biscuits and fixings, extraction nozzle, Torx screwdriver	£489
DOWEL & DOMINO JOINTERS					
		Power (watts)	Weight (kg)	Accessories	Price
Mafell	DD40 Dowel Jointer	600	2.8	Systainer box, anti-slip mat, glue bottle, 8mm dowels, Allen keys	£425
Festool	Domino	420	3.2	Systainer storage case	£512

Looking for new kit for your workshop? Our reference section brings together details of all the wood-working machines we've tested in recent years that are still available today. This month's checklist looks at biscuit, dowel and domino jointers, with a total of 14 models featured. It includes ● a specification summary ● the current price ● manufacturer contact details, including website addresses ● our verdict on the machine ● the issue of The Woodworker (or in some cases, Practical Woodworking) in which we originally reviewed it, so you can re-read the full test report if you wish

NEXT MONTH
Machinery Reference updates our listings of table and bandsaws

FURTHER INFO	VERDICT		
Contact	**In our opinion**	**Rating (out of 5)**	**Tested**
Draper 02380 494333 www.draper.co.uk	A rugged, though fairly basic machine. Good for simple jobs	3½	April 2007
Toolbank 0800 068 6238 www.toolbank.com	Budget-priced jointer ideal for more occasional use	3½	Sept 2006
Screwfix Direct 0500 414141 www.screwfix.com	De-tuned version of JS102 with simplified fence and reduced price. Exclusive to Screwfix. Good for simple work	3½	Dec 2004
Freud 0113 2453737 www.freudtools.com	A popular machine with a proven design. Rather noisy motor. Similar to the Trend and the Casals	4	April 2007
Trend 0800 487363 www.trendmachinery.co.uk	A similar machine to the Freud JS102 and the Casals. A reliable performer with particularly comprehensive instruction manual	4	April 2007
Toolbank 0800 068 6238 www.toolbank.com	A popular machine with a proven design. Rather noisy motor. Similar to the Trend and the Freud	4	Dec 2004
Milwaukee 01442 261201 www.milwaukee-et.com	Well made quality tool with a versatile fence similar to that on the Mafell. Precise and consistent	4	May 2007
De Walt 01753 576055 www.dewalt.co.uk	High quality jointer with excellent fence and great performance Comfortable and reliable	4½	April 2007
Bosch 01895 838743 www.bosch.co.uk	A high quality professional jointer with good performance	4	May 2007
Makita 01908 211678 www.makitauk.com	Like all Makitas, this is a rugged and reliable tool. Similar to the Bosch, though not quite as well finished	3½	May 2007
NMA Agencies 01484 400488 www.nmauk.co.uk	A well designed machine that uses the same excellent fence as the Milwaukee. A high quality tool	4	May 2007
De Walt 01753 576055 www.dewalt.co.uk	A cordless version of the DW682. Battery power means slower performance, but quality is great	3½	Dec 2004
Axminster 0800 371822 www.axminster.co.uk	The Rolls Royce of biscuit jointers. Exquisitely made and infinitely adjustable. The perfectionistís dream	4½	May 2007

Contact	**In our opinion**	**Rating (out of 5)**	**Tested**
NMA Agencies 0184 400488 www.nmauk.co.uk	The DD40 uses a pair of dowel drils to combine the ease of biscuit jointing with the precision of dowel jointing. Fast and precise. An excellent tool	4½	May 2007
TTS Tooltechnic Systems 01824 760791 www.festool.co.uk	Unique jointer combining the best of both biscuit and dowel jointers. Effectively a miniature slot mortiser. Highly accurate and incredibly versatile. The ultimate jointer	4½	May 2007

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APRIL 2007

PROJECTS: Low dresser, Cherry bed, Black Forest stool
FEATURES: Saw blade test, Handcut dovetails, Planemaking pt1: metalwork, Ally Pally review, Secret drawers pt4, Iron mighty: dust extractors
TESTS: Giant test: biscuit jointers pt1 , Dewalt dovetail jig, Bosch PSR 14.4 drill driver, Sorby Proedge sharpening system, Behlen sealers, Axminster rolling rule, LED light
TURNING: Erring stand, Shaker ring-handled knob, Elm platter

MAY 2007

PROJECTS: Planemaking pt2: rebate plane, Snooker cue case, Carving flowers, Wildlife nesters pt1, Jewellery box
FEATURES: Boxmaking, Why buy a mini jointer?, Door fitting tech, Feather mitres, Allergies, Mitre blade tune-up
TESTS: Giant test: biscuit jointers pt2, Dremel scroll saw, Bosch GFK600 router, Metabo multihammer, Dakota hold downs, Faithfull wheel dresser, Zona razor saw
TURNING: Quaiche, Split hollow form techniques, Piercing & colouring, Finials

JUNE 2007

PROJECTS: Kitchen dresser, Wildlife nesters, Bell-top clock, Oak laminated door
FEATURES: Mitres & bevels, Plane making part 3, French polishing
TESTS: Giant test: Small routers, Draper Expert circular saw, Wolfcraft depth stops, Screwfix digital calliper, Axminster work lights, Dakota rounders & balers, Draper vice, Japanese saws, Metabo SCM saw, JessEm Rout R Lift FX, Mitre saw blade group test, Six of the best: Paintbrushes
TURNING: Making wooden chucks, Drinks coasters

JULY 2007

PROJECTS: Fall-front bureau, Mobile jointer stand, Oak dining table, Wildlife nesters
FEATURES: Routing with a multi-profile cutter, Plane making part 4: The jack plane
TESTS: Giant test: Planer thicknessers, Axminster planer, Japanese chisels, Screwfix letter/number stamp set, Faithfull sawtooth bit set and carpenter's brace, Draper Expert sander, Axminster bench dogs, Metabo bench thicknesser, Bosch sliding mitre saw, SIP 12in mitre saw, Machine-Dro saw gauges, Six of the best: Toolbelts

AUGUST 2007

PROJECTS: Welsh dresser, Box clamping jig, Country-style table, Picture frame, Arts & Crafts headboards
FEATURES: Planemaking part 5, Upgrading your grinder
TESTS: Giant test: Cordless jigsaws, Felder woodworking machine, Draper Expert belt sander, Forge Steel saw, Axminster workshop magnet, Dakota mini-vice, Erbauer percussion drill, Axminster corner chisel, Faithfull screwsink set, Dakota angle gauge, Festool Kapex sliding mitre saw, CMT router, Six of the best: Work gloves

SEPTEMBER 2007

PROJECTS: Writing slope, TV cabinet, MDF bed base
FEATURES: Planemaking part 6, Getting the best from your scrollsaw, Air filter silencer
TURNING: Pearwood scoop, Table lamp, Unusual chucks
TESTS: Giant test: Combination sanders, Rage 3 mitre saw, Jet bench thicknesser, Festool circular saw, Woodstar router table, Draper combi drill driver, Dakota mitre square, Butt chisel set, Axminster punch set, Forge Steel laser, Pick-up tool set, Pull saw, Router Ease guide, Six of the best: Extension reels

OCTOBER 2007

PROJECTS: Oak display cabinet, Fluted table, Chest of drawers restoration
FEATURES: Bench-top router jigs, Planemaking part 7, A brief history of screws
TURNING: Off-centre chucks, Rotunda moneybox, Thimbles
TESTS: Giant test: Whetstone grinders, Hammer bandsaw, Slidegrinder, Draper jigsaw, Axminster storage, Ryobi One+ drill/driver, Irwin wood bits, Skil sander, Dakota polishing kit, Festool TS55 saw blades, Axminster and SIP dust extractors, Bosch palm router, SIP bandsaw, Six of the best: Mallets
NEW MACHINERY CHECKLIST

AUTUMN SPECIAL 2007

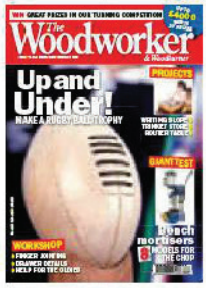
PROJECTS: Veneered sofa table, Incised carving, Mantel shelf, Kids' paint windows
FEATURES: Dowelling, Plane-making part 8, Thicknesser jig
TURNING: Beech footstool, Burr oak bowl, Sanding on the lathe, Flutes and grooves
TESTS: Giant test: Jointers, Miller dowel system, SIP scrollsaw, Worx circular saw, Anant rebate plane, Bosch sander, Ryobi One+ tools, Irwin wood bits, Forge Steel planes, Hitachi circular saw, Draper trestles, Scheppach table saw, SIP planer/thicknesser, Makita bench thicknesser, Six of the best: Countersinks
MACHINERY CHECKLIST

NOVEMBER 2007

PROJECTS: Mahogany table clock, Oak coffee table
FEATURES: Designing a router table, Planemaking part 9, Routing accurate joints
TURNING: Cherry and mahogany clocks, Collet chucking techniques
TESTS: Giant test – Circular saws, SIP spindle moulder, Tormek sharpening system, Hitachi laminate trimmer, Skil and Draper saws, Black & Decker drill, Dremel Multivise, Forge Steel block plane, Incra gauge / rules, Metabo planer thicknesser, Scheppach scrollsaw, Erbauer combi kit, Six of the best: G-clamps
MACHINERY CHECKLIST

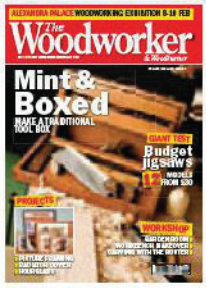
DECEMBER 2007

PROJECTS: Oak double bed, Model tram, Pencil cases
FEATURES: Puzzle heaven, Building a router table, Anatomy of a drawer, Plug cutters, Weekend groover, Woodworkers on the web
TURNING: Wine tap and spigot, Gavel, Polishing on the lathe
TESTS: Giant test – Cordless drills, Faithfull whetstone, Draper honing guide, Hitachi cordless circular saw, Forge Steel tool sets, Behlen's Wood Touch-up DVD, Draper planer, Axminster Odd-Jobs, Dremel Versatip, Leigh dovetailing jig, SIP workbench, Trend router. Six of the best: block planes
MACHINERY CHECKLIST



JANUARY 2008

PROJECTS: Writing slope, Miniature chest
FEATURES: The Harpmaker, Building a router table, Drawer details, Woodies on the web
TURNING: Rugby ball trophy, Mug tree, Routing on the lathe
TESTS: Giant test – Bench mortisers, Makita planer, Dakota brass mallet, Axminster sanding pens, Draper bradawl, Irwin holesaws, Erbauer combi drill, Faithfull sash cramps, Hermes sanding discs, Worx drill, Woodstar and DeWalt table saws, Black & Decker Autoselect tools, JCB router and bits, Veritas apron plane, Six of the best: Ear defenders
MACHINERY CHECKLIST



FEBRUARY 2008

PROJECTS: Traditional toolbox, Radiator cover, Picture framing, Hall mirror
FEATURES: Garden room, bench makeover, Glues 1, Carving with the router, Woodworkers on the web
TURNING: Hourglass, Textured bowl, Choosing the right chuck
TESTS: Giant test – Budget jigsaws, Site power tools, Faithfull spokeshaves, Draper hand drill, Axminster stones, Behlen stains, Rutlands magnetiser, Oneida Dust Deputy, Proxxon belt sander, Record table saw, Trend push block, Veritas jack plane, Six of the best: Toolbox saws
MACHINERY CHECKLIST

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Axminster BS350CE bandsaw, 8in depth of cut, good runner, recently refurbished, new switchgear, drive belts, spare blades, accessories; £120.
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01233 638039 (East Kent)

Hardwood veneers in 200 assorted sheets, approx 24 x 18in, 50p each.
01543 279310 (Staffs)

Record DML24 lathe, NVR switch, good condition, suit beginner; £85.
01752 336057 (South Devon)

The Woodworker, complete run from 1951-1981, professionally hardback-bound to 1968, the rest in Woodworker binders, includes the 75th Anniversary Commemorative copy; offers. Buyer collects.
020 7727 7995 or 020 7274 9250 (SE London)

Trend 12-piece router cutter dolls' house set, only a few cutters used; £45.
01668 219433 (Northumberland)

Kity 623 30mm dia spindle moulder with tenoning blocks, two Whitehill cutter blocks plus cutters; £650 ono. Buyer collects.
01473 730515 (Suffolk)

Brazilian mahogany, over 150cu ft in 6ft planks 1-2in thick and 6-20in wide, not plantation; only £40 per cu ft (will split).
07792 235924 (Warwicks)

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01590 673679 (Hants)

Trend CDJ dovetail jig and box jont template, as new; £75. Axminster 1/2in router in case, little used; £40.
01933 273156 (Northants)

Record DMB65 V9C bandsaw, 170mm max cut, can be seen working; £50. Phone after 6pm.
01388 763262 (Durham)

Holly boards, air dry, 25, 38 and 50mm; £10 each.
01483 276004 (Surrey)

Arrand indexable turning tool, 10mm shank, new; £10. Veritas cabinet scraper with four new blades; £15. Engineering in Miniature magazines, 44 copies; £30. Buyer collects.
0191 496 0257 (Tyne & Wear)

Axminster BTS10PP table saw with stand, rip fence, mitre fence and wheel base; £125.
01564 793470 (Warwicks)

Practical Woodworking 1968-2007, a few missing. Hobbies Weekly 1944-1951 including approx 200 fretwork/toy patterns. Offers.
01403 273411 (Sussex)

Consort combi with 36in lathe, sander, moulder etc; £485. Clarke drill; £25. Mahogany, oak, iroko; call for details.
01387 780284 (Dumfries)

Bosch GOF2000 router, 1/4in, 8mm and 1/2in collets, used three times; £100.
01242 675603 (Gloucs)

Routing magazines, 63 copies in all; £30.
01922 453565 (West Midlands)

Multico model M heavy-duty single-phase mortising machine with a range of chisels and fittings, new condition; £450 ono. Buyer collects.
01473 730515 (Suffolk)

Apple boards, waney-edged, approx 1200 x 20mm in various widths to 500mm; call for details.
07979 880207 (E Sussex)

Myford ML8 lathe with saw and planer attachments, many tools and accessories; £400 ono.
01603 627987 (Norfolk)

Original genuine Philadelphia Disstons 12in brass-backed tenon saw; £25. Panel saw, 1hp, 20in; £25. Both scarcely used and in excellent condition.
01952 277282 (Shrops)

Woodworking hand tools and woodturning tools, abrasive cloth, screws etc; call for list.
07929 871741 (Cheshire)

APTC mitre trimmer; £50. APTC biscuit jointer; £30. Both tools hardly used.
01483 276004 (Surrey)

Sealey SM42 5-speed lathe, 1000mm centres, 300mm swing, sanding table, 2/3 jaw chucks, faceplates, bowl turning etc; £150.
01787 237441 (Essex)

New mahogany, 8 lengths 60 x 9 x 3in plus some random lengths, approx 9.5cu ft; £495.
01704 840278 (Lancs)

WANTED

Woodworking hand tools, especially old wood and metal planes, wanted by collector. Write to Mr B Jackson, 10 Ayr Close, Stamford PE9 2TS or call
01780 751768 (Lincs)

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Send/email a photograph of your item and we'll include it with your ad for FREE.

6 OF THE BEST DUST MASKS

There are many types of dust mask available, some better than others. When choosing one, make sure that it's CE approved. Disposable masks should be FFP2 rated and powered respirators TH1 rated. Dust masks used to be crude and inefficient, offering little real protection. Many of the current models are now far more sophisticated, with built-in valves and efficient seals. They're now known as respirators.

1 Trend Airshield Pro

Price: £233.82

Trend □ 0800 487363 □ www.trendmachinery.co.uk

This is the new version of the Trend Airshield, which is a powered respirator. It's been redesigned to increase filtration efficiency and improve comfort. It uses an 8-hour rechargeable Ni-Mh battery with an audible low-battery warning. The motor has been relocated to reduce noise, and you can wear it with ear defenders.

2 3M 9322 Respirator Mask

Price: £2.69

3M □ 0870 60 80060 □ www.3m.com

This is a disposable dust mask with a central exhalation valve. It's soft and folds flat, making it easy to store. It's made from polypropylene and has polyurethane foam around the nose clip. Well designed, it moulds easily to the face and is comfortable to wear. It forms a good seal and is generally pleasant to use.

3 Flexinet P2 Valved Dust Mask

Price: £2.49

Screwfix Direct □ 0500 414141 □ www.screwfix.com

This is a rigid dust mask, again with a central exhaust valve. It has a mesh outer covering for durability and a soft fabric liner around the inner edge. It has quite a large filter area, though its rigid shape makes it rather uncomfortable to wear and the upper edges are annoyingly close to the eyes.

4 Aircap 2

Price: from £100.51

Bradwest Safety Co □ 0870 199 9125 □ www.bradwest.co.uk

This is a powered respirator mounted on a baseball cap. The separate battery pack, either disposable or rechargeable, is hung on a belt. The lightweight visor provides excellent visibility, though low impact protection. A pair of replaceable bayonet-mounted filters is fitted. The Aircap 2 is very light and comfortable to wear, even for long periods. Highly recommended.

5 Trend Air Ace

Price: £36.42

Trend □ 0800 487363 □ www.trendmachinery.co.uk

This rather unusual looking respirator has replaceable filters. The rubber face mask provides an excellent seal and the exhaust valve in the base prevents exhaled air from fogging goggles or glasses. A clip-on visor is available for added eye protection. It's supplied with two electrostatic filters; charcoal filters are also available for odorous environments. The Air Ace is comfortable to wear, with a large filter area. A good choice for the enthusiastic woodworker.

6 3M 7500 Halfmask Respirator

Price: £20

3M □ 0870 60 80060 □ www.3m.com

This is a versatile mask with a comfortable silicone facepiece and replaceable twin filters. A wide range of filters is available to provide protection against specific dusts and toxic vapours. This is an extremely comfortable mask to wear, with good airflow and no unpleasant rubber smell. It would be an ideal choice for anyone using spray finishes where specific filters must be used.

www.ukfelder.co.uk

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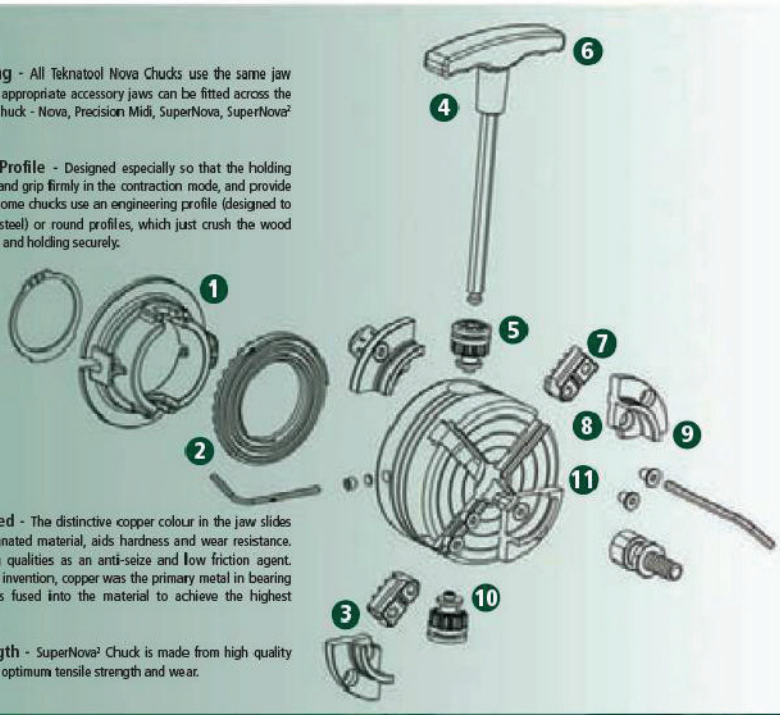
5 YEAR GUARANTEE

> "...I believe it fits into the upper class of turning chucks. It is well-machined, strong, durable and easy to use...It is miles ahead of the cheap line of generic OEM scroll chucks currently available on the market."
>
> **Dean Bielanowski**
> **onlinetoolreviews.com, Dec 2006**

TECHNICAL INFORMATION

1. **Composite Backing Plate** - The SuperNova² has a fully sealed backing plate made from Duracon 25 composite, which is reinforced with stranded glass fibres. This is the same material used in car auto parts such as seatbelt mechanisms, prized for it's lightweight / high strength ratios. The backing plate also has a 24 position spindle index, and features a holographic sticker to ensure Nova authenticity.
2. **Powerful** - Special 'Tuff Lock' gearing is hardened and designed with a wide, open formed tooth that gives a fast smooth action and unshakeable grip. The extra holding strength and stability decreases vibration - you can extend much longer, from small delicate stems, through to large rugged pieces.
3. **Auto Stop** - SuperNova² Chuck comes with auto safety stop feature built into the jaw slide, meaning jaw slides can't project beyond the chuck body.
4. **Easy Grip Handle** - Comfortable to use, large grip makes it easy to tighten and loosen chuck jaws.
5. **Captured Pinion** - Allen head pinion is captured into the chuck body, in 2 positions, delivering high quality, easy to use performance with positive and bvquick locking. Reference rotation arrows allow quick view for locking direction.
6. **One Handle Pivot Action** - The SuperNova² has a unique soft touch pivot action handle which can swivel away, preventing collision with either the lathe or the turning.
7. **Precision Fit and Long Life** - Large strong section guideways, with strong 6mm slideway tongue. Large surface area for long term bearing surface wear and resistance.
8. **Common Jaw Fixing** - All Teknatool Nova Chucks use the same jaw fixing method, meaning appropriate accessory jaws can be fitted across the range to any Teknatool chuck - Nova, Precision Midi, SuperNova, SuperNova² or Titan.
9. **Woodturning Jaw Profile** - Designed especially so that the holding jaws cut into the wood and grip firmly in the contraction mode, and provide high tear out strength. Some chucks use an engineering profile (designed to hold hard material like steel) or round profiles, which just crush the wood fibres without digging in and holding securely.
10. **Copper Impregnated** - The distinctive copper colour in the jaw slides is due to copper impregnated material, aids hardness and wear resistance. Copper has outstanding qualities as an anti-seize and low friction agent. Prior to the ball bearing invention, copper was the primary metal in bearing materials. The copper is fused into the material to achieve the highest mechanical properties.
11. **High Tensile Strength** - SuperNova² Chuck is made from high quality K1045 machine steel for optimum tensile strength and wear.



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