

TRADITIONAL Woodworking

THE MAGAZINE FOR ALL WOODWORKERS

MAY 2001 £2.70

Paring to perfection

- Choose the right finish
- Buying Japanese saws
- Make your own thumb gauges

Make it this month...

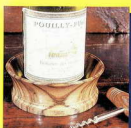
**Framed and
panelled wardrobe**



**Rustic patio
chairs**



**Ovangkol wine
coaster**



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Cherry and sycamore wardrobe

Faced with a mounting collection of black plastic bags, **Tim Ashby** decided it was time to build a wardrobe. The result was a stylish and impressive project that could look good in a wide variety of materials, and which you can follow to the letter or alter to suit yourself

I'm going to let you into a secret. Although I'm a professional furniture maker, which means my workshop is a place I seek refuge from, not in, I am an occasional shed dweller. When I'm on one of my creative kicks, I like to stick with it in my shed for a few absorbing days – which means sleeping on the job!

One result of this is that my clothes tend to get distributed in various drawers and black bags around my home, workplace and car. Now, I'm not exactly a fashion model who needs a wardrobe the size of a room, but the time comes when you crave a bit of order.

Not wishing to be the owner of some massive creation, I decided to make something with a nice, light feel. It was to be flexible, portable and, should I become rich or trendy and a regular clothes buyer, potentially expandable.

Only you can decide what volume of clothes you need to store, and this will of course determine the size of your storage furniture. You also need to decide if you favour free-standing or fitted wardrobes – I'm anticipating a change of address (no, I'm not moving into my shed full-time), so I opted for an initial portable and knock-down unit with a small footprint, that can accommodate space for hanging shirts and jackets as well as drawer storage. For long coats, dresses or suits, a larger footprint and overall unit size would be almost inevitable – it would be possible to include a facility for hanging a few coats

and hats, though only by extending the internal hanging bar through the side frames and into the outside world. This unit can then be expanded with additional wardrobes of different heights, in the same manner as Chinese or Japanese 'stepped' or 'stair' wardrobes.

Having first taken dimensions for jackets and shirts on a large wooden coat hanger, and gauged the required drawer volume by the number of black bags I had, I could shape the inner and outer look of the piece. If you read my article on designing furniture in last month's *TW*, you'll know what came next: first I got my brain into gear with a few sketchbook scribbles, and then the drawing board beckoned. At this stage, I could use tracing paper overlays to play with different proportions and try out details as I made the scaled working drawings.

As regards a possible cornice or 'hat' for the design, I initially tried to avoid using one by giving visual weight to the top of the unit with the spacing of the panels and with additional decorative rails (which were also repeated throughout the construction). Finally, I felt that the piece did need a more definite finishing point when you looked upwards and, after a day of agonising and a night of sleeping on it, decided for a fielded type moulding that could be made with an electric planer.

As regards the base of the wardrobe, I considered various plinth options before finally deciding to let the piece 'float' on legs that were an extension



of the outer side frame stiles. This also created a space for me to store my three thousand different shoes.

Your personal time, needs and desires, budget, abilities and available tooling are real factors in the design choices you make throughout a project. Overall, this project was alive in

my workshop for three months in some shape or form – though, looking at past sketchbooks, it has been hanging around a lot longer than that.

One of the most enjoyable parts of the design process is the search for ways to reflect the internal activity in the outer form – something which for me

is an echo of a past life in box-making. This means that while you're still at the design stage, you need to make your choices for the method of construction you're going to use. Which is where I contradict myself completely because, being the paying customer, I decided not to make posh joints and opted for rapid biscuit-jointed and panelled frames throughout the whole construction. There's no reason at all, however, why you shouldn't do it with traditional joints, and indeed if you're doing it for pleasure, not profit, I'd heartily recommend this as the way to get the most satisfaction from your work.

Materials

In choosing my materials, I knew I had some sycamore boards that could form the framing and help create the light feel I was looking for. The size of these boards also needed consideration when I was working on scaled workshop drawings – if you've already got the timber you're going to use, you'll have to cut your cap to fit your cloth!

If you're buying material specifically for the project, there are numerous choices of timber species in veneered, solid wood or man-made boards that would work for the panels. While I would have loved to have veneered the panels in something tricky and beautiful, time was pressing, so I looked at ready-veneered boards. Matching sycamore panels could have been a stark, minimalist option, but instead I opted for some creamy coloured cherry-faced plywood I found, which had some interesting book-match features.

Choice of material is of course more than just a matter of making an immediate decision on what looks best. The finish you're going to use is a crucial part of how the timber will appear, so think this through as part of the planning process. I'd suggest that having given the whole piece an initial finish of two or three applications of Danish oil, followed up with a coat of wax, you may wish to repeat the waxing process a few times over several weeks to build up a soft, glowing patina. Either way, after completing the finishing process you will need to let the wardrobe air thoroughly, so that all oil and wax odours can dissipate fully, before you start storing any clothing in it ■

CUTTING LIST (All dimensions in millimetres)

	Qty	Length	Width	Thickness
Side frames (two)				
Outer stiles	4	1910	54	22
Inner stiles	2	1770	54	22
Upper rails	20	204	54	22
Bottom rails	4	204	90	22
Framed shelf 'A' (two)				
Stiles	4	624	54	22
Rails	2	548	54	22
Framed shelf 'B' (two)				
Stiles	4	624	54	22
Rails	4	530	54	22
Doors (two)				
Stiles	3	1770	54	22
Right stile for left door	1	1770	64	22
Upper rails	20	204	54	22
Bottom rails	2	204	90	22
Handles	2	163	19 dia	
Handle pillars	4	38	16 dia	
Panels				
No 1	6	220	220	6
No 2	12	70	220	6
No 3	6	808	220	6
No 4	6	322	220	6
Framed shelf A	2	532	548	6
Framed shelf B	2	532	530	6
Backboard	1	1750	648	12-18 ply
(alternative framed and panelled backboards may also be constructed)				
Drawer liner				
Core	2	372	496	18
Lipping	2	372	22	18
Drawer runners	6	480	22	8
Screws	24	19mm no.6 esk		
Top drawer				
Front	1	588	98	22
Sides	2	488	98	12
Back	1	588	78	12
Middle drawer				
Front	1	588	126	22
Side	2	488	126	12
Back	1	588	106	12
Lower drawer				
Front	1	588	148	22
Side	2	488	148	12
Back	1	588	128	12
Drawer bottoms				
Screws	3	576	486	6
Screws	9	19mm no.6 esk		
Drawer handles	6	100	18 diameter	
Screws	12	25mm no.6 esk		
Cornice				
Front	1	732	90	22
Back	1	732	90	22
Sides	2	634	90	22
Screws	12	32mm no.8 esk		
Sundries				
Knock-down fittings	32	Minifix Housing for 18mm panel		
	32	Minifix Connecting Bolts		
	32	Minifix Cover Cap, white		
Biscuits	As required			
Hinges	6	50mm brass butts, with 19mm screws to suit		
Ball catches	4	40mm		
Clothes rail	1	648	25 diameter	
Clothes rail bosses	2		75 diameter	13

STEP-BY-STEP GUIDE



1 Buy whatever solid timber you require, slightly oversize. Using a pencil, square, straight edge and tape measure, map out all the frame components on your boards, making sure these too are oversize to allow for machining



2 If you have over-long boards, plan the arrangement of the components so that they can be cross-cut into manageable lengths



3 Mark and cut a straight edge on the boards, removing any wavy edges



7 Plane a straight edge, square to the sanded surface



8 Thickness the rails and stiles to their final widths and thicknesses



14 Lay out the side frame and door stiles with their respective rails. The cherry-faced plywood that will later form the frames' panels can, at their oversize stage, be used as boards on which to lay the frames. Be sure, however, to check any veneer matches in the plywood before you cut the 8x4-foot sheet into (oversize) strips



20 Cut the biscuit slots at the ends of the side frame and door rails, making sure that their depth is lower than that at which the panels will sit inside the frames later. An anti-slip mat is useful here, to avoid complicated cramping procedures for the relatively short rails



21 Cut the biscuit slots in the side frame and door stiles



22 Stack the side frame and door stiles and rails, ready for routing the grooves that will accept the panels. Put the stiles and rails for the shelves and cornice to one side for later work



4 From the first straight edge, parallel edges can be achieved; working from the fence on a circular saw, cut the previously marked stiles and rails of the frames, doors, shelves and cornice. It is important to cut the long stiles a good half inch over-width at this stage, to allow for any bowing that may occur. Allow the sawn components to settle for a few days



5 Thickness and surface-plane the main flat surfaces of the stiles and rails, leaving them perhaps 3-5mm oversize in thickness. Leave the boards – after the heat of the machining – to settle for a few weeks.



6 Surface-plane the concave surface of each board – this can be done by hand or machine – then give these surfaces an initial sanding



10 With a bandsaw and mitre trimmer (or cross-cut circular saw), cut one end square on each of the rails for the side frames and doors



11 Cut the opposing end of each side frame and door rail square, making sure that the final lengths of each rail are equal. A length stop can be used on a mitre trimmer or a cross-cut circular saw to ensure equal lengths



12 With a pencil gauge, mark the centres at the ends of the side frame and door rails, for centring the biscuit jointer later



13 Establish and mark the stiles for the doors and side frames



17 Cramp the side frame and door stiles together, so that the shoulder and biscuit positions for all the rails can be marked together on the stile edges. This ensures the alignment of all the rails around the carcass



19 Make sure each rail-to-stile joint is numbered, with the corresponding shoulder and biscuit positions in alignment



23 The through grooves on the side frame and door rails can be cut on a router table



24 The stopped grooves on the side frame and door stiles can be cut with a hand-held router, working from the fence. Two router fences, if you have them, will create more stability for the machine in this process

STEP-BY-STEP GUIDE

25



Cut the cherry-faced plywood panels to width, leaving them as long strips which travel the full length of their respective frames. Check any arrangement of veneer matches

26

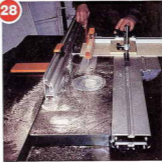


While the panels are still in long strips, sand them clean on both surfaces

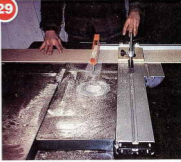
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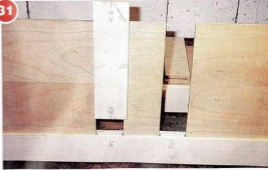
Cut the panels to their final lengths, working progressively down each strip to ensure that any figure and grain runs visually through from one panel to the next

30



Lay out the panels for all the side frames and doors, and number each panel to correspond with its respective frame

31



Check all the panels for fit in the grooves in their respective frames

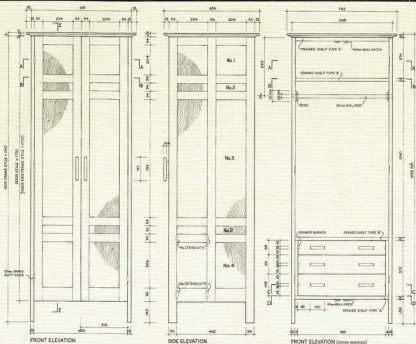
WORKSHOP
PROJECT

Dry-cramp the door frames and panels on a flat surface, so you can check the whole construction for flatness and squareness. When you're happy with the dry run, you can dismantle the work and get ready to glue it up. Cramp the assemblies again as you go along, checking thoroughly for flatness and squareness at each turn

32



CHERRY AND SYCAMORE WARDROBE



The side frame-and-panel assemblies are glued together in two halves



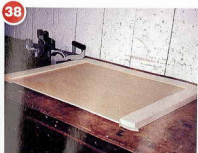
Cramp the two doors together and use them to measure the length of the stiles for all four framed shelves (marked A and B in the drawings)



Cross-cut to length the stiles for all the four framed shelves. Do the same to two A and two B-type framed shelves, to create their final width



Check that the width of the two A and two B-type framed shelves will sit in their respective positions on the end frames, allowing for their relationship to the backboard rebates and the thickness of the doors



Rout grooves on the inside edges of the framed shelf stiles and rails to accept the cherry-faced plywood panel. Mark and cut the biscuit joints which will connect the stiles to the rails. Mark and cut the plywood panel to sit in the grooves of the assembled frame



With a marking gauge, mark the positions of the rebates that will accept the backboard on the rear edges of the side frames. Cramp the two side frames together with sash cramps, ensuring that their two rear edges are in contact and that the inner surfaces of the frames are facing upwards. On these inner surfaces, mark in pencil the finishing positions for the knock-down fitting edges of the framed shelves. Dismantle the two side frames



Drill holes for the knock-down fittings to the inside surfaces of the side frames. A portable drill press can be used to ensure that these are straight and square to the inside surface



Make a supporting boss to accommodate the clothes rail. This can be turned on a lathe or, alternatively, made as a square or diamond shape. Drill holes to accept the clothes rail on the inside surfaces of the side frames



Fine-sand and finish/polish the inside surfaces of the side frames. Screw all the knock-down fitting pegs in place



Rout the rebates that will accept the backboard on the rear edges of the side frames and the two A-type framed shelves. While in rebating mode, carry on and rout the rebates on the inner stiles of the doors



Screw the knock-down fitting pegs into the inside surface of the side frames



Screw the boss on to the inside surfaces of the side frames. Make sure that the clothes rail will pass through the boss and into the drilled hole on the inside surfaces of the frames



Assemble the two side frames to the four framed shelves, using the knock-down fittings



With the marking template, mark the centre points for the knock-down fittings on the inside surfaces of the side frames, ensuring they are in alignment with their respective framed shelves



Check that each framed shelf fits correctly to the corresponding knock-down fitting peg on the inside surface of the side frame. Remove the pegs prior to re-assembly later



Make a backboard to fit the rebates at the rear of the assembled carcass. Sand clean and finish the inner surface of the backboard. Screw the backboard in position, making sure the screws will pass into the edges of the side frames and framed shelves. Three-in-one drill bits are useful for this process

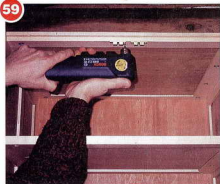
WORKSHOP PROJECT

Fit the two doors in their opening in the main carcass, and cramp in their finished positions. Check that they are in alignment with each other, then mark the hinge positions. Remove the doors from the carcass, then mark and cut the hinge slots

WORKSHOP PROJECT



Hang the doors, drilling screws into the centre holes of the hinges only



Screw in place the upper and lower ball catches that secure the doors



Check the doors for fit within the carcass and in relationship to each other. Adjust the hanging where necessary



Machine the four components for the cornice, using a planer-thicknesser and circular saw. Mark and cut the mitres, ensuring they will create a cornice that sits accurately on the main carcass. Mark and cut the biscuit joints



Cramp and glue the cornice, checking for flatness and squareness



Working from the fence on a hand-held machine planer, cut the rake on the underside of the cornice and sand clean



Screw and fit the cornice in position, checking for alignment with the main carcass



On the lathe, turn the two door handles and the door handle pillars. Mount the handles in a machine vice and establish the centre line and drilling points for the pillars



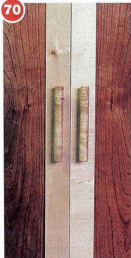
Drill the holes in the door handles that will accept the door handle pillars



68 On a scrap of plywood, drill holes to accept the door handle pillars. These are also used to test that the centres between these pillars on the handles will equal the centre of the pillar holes that will be drilled on the front surface of the doors



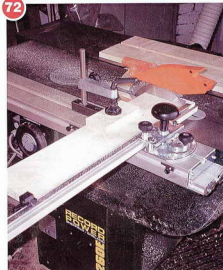
69 Remove the doors from the main carcass. Mark the centre points of the pillar holes on the front surfaces of the doors. Drill these holes, using a portable drill press to ensure they are straight and square to the door surface



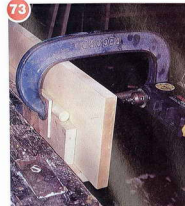
Sand clean and pre-finish the door handles and pillars, as well as the inner and outer surfaces of the doors and the outer surfaces of the side frames. Finishes are a matter of personal choice, though a combination of Danish oil and wax provide an easier solution than applying layers of lacquer that have to be rubbed down between coats. Cramp and glue the handles in position and re-hang the doors; all the hinge screws can be driven home at this stage



71 Make the two drawer liners, with hardwood lippings and drawer runners to fit in their left and right positions in the drawer opening in the main carcass. Screw the drawer liners into their finished positions



72 Machine the three drawer fronts to size, to fit in the drawer opening between the two drawer liners. Make the drawer sides, backs and bottoms, using your favoured method for dovetailing



73 Make the drawer handles, which are screwed to the drawer fronts



74 When the drawers have been cramped and glued, rout the housings on the drawer sides which will sit on their respective runners. Check the three drawers for final fit

INFO

The knock-down fittings used in this project are available in packs of 32 from Woodfit Ltd, Kem Mill, Whittle-le-Woods, Chorley, Lancashire PR6 7EA, tel 01257 266421.

INFO

This project was built, wherever applicable, with Bosch tools. For info on any Bosch product, call the Customer Service Line on 01895 838782.

INFO

An Ashby Design Workshop Planpack for a Framed and Panelled Wardrobe, featuring two A1 size plansheets with scaled drawings, full-size construction details and an exploded isometric drawing, is available priced £12 + £1 post and packing from the Alms House, tel 01225 776329. Alternatively, visit the Ashby Design Workshop website at www.woodplanpacks.co.uk.

THE GALLERY

Want to show off your woodworking efforts? Send some words and pictures to *The Gallery, Traditional Woodworking, The Well House, High Street, Burton on Trent, Staffs DE14 1JQ*. As well as seeing your work in print, every reader whose material is published will receive a set of high-quality Faithfull chisels worth a handy £80. So get writing! What more incentive could you possibly need?



Sean Bartlett, of Weymouth, started out in woodworking by serving a four-year apprenticeship with the now-defunct Dorchester Building Guild. When the company ceased trading, he went self-employed and now runs his own woodworking shop in Broadwindsor, Dorset.

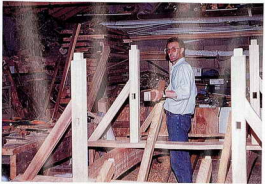
Nowadays, he makes anything from furniture to turnery. But one thing he'd never made before was a bridge... at least, not until a local water lily garden asked him to do just that.

The Japanese-style 'Monet' bridge he was commissioned to build was to measure 18 feet long by three wide. Sean chose iroko, because it withstands contact with the ground so well, and set about working out the proportions with only a black and white photo of Monet's original bridge in Giverny to go on.

One of the trickiest parts, he says, was laminating the arched beams and handrail, which together were made up of 12 separate one-inch pieces. Sean used a phenol formaldehyde resin for gluing them up, leaving them bent over an arched former for some 24 hours to make sure they got the idea. He then had



Above: The bridge dry-assembled in the workshop
Below: Sean Bartlett constructing his masterpiece



to cut the tenons in the vertical supports – just try doing this when they'll be located in a mortise in an arched piece, and you'll appreciate how difficult it was to get the angle right on each one. These joints were pegged using home-made iroko dowels, while the treads were held in place using fox-wedged dowels – that is, with wedges driven in at the top and bottom to stop them moving in either direction.

The handrail, beam and supports were painted with a preservative to match the green of the bridge in Monet's famous painting, while the treads got a coat of teak oil just to keep them out of mischief. Having dry-assembled the bridge in his workshop, Sean then had to knock it back down and take it bit by bit to the gardens, where it was formally opened by Paul Daniels and featured in the local and national media. 'Few people knew,' he muses, 'that I was behind the construction of it with just the help of my wife and occasionally my two children.' This fine achievement is a real tribute to the lone craftsman – and an inspiration to anyone who'd like to have a go at a big project, but assumes that it's just too ambitious ■



1 Drill a pilot hole in the blank then screw it on to the screw chuck



2 Carefully slice the edge of the disc true, using the small bowl gouge



3 You can disguise the dovetail by forming low relief mouldings in and around the recess



4 Feed the square scraper down the side of the opening, taking small, manageable cuts



5 Slice down the inside of the opening with the gouge, forming the splayed sides of the coaster



6 Create the moulding on the outside and plinth by taking a number of small cuts



7 Use the point of the spindle gouge to form the tiny corvette moulding in the plinth



8 You can form quite a crisp bead on the rim of the coaster by simply dabbing at the corners with the beading tool

A complementary corkscrew handle

To go with your wine coaster, you might like to make a corkscrew in the same wood. This is made out of a block measuring 10cm long and 3cm square, which is marked out with a centre line along one side. To make sure that the corkscrew fitting passes through the handle at right angles to the axis, first form the hole by using a press to help you drill accurately through the centre of the block (picture 9).

Mount the drilled block between centres, with the lathe set at 2000rpm, and turn it down to a cylinder with a $\frac{3}{4}$ in roughing down gouge. After parting down at each end, use a skew chisel to form a tapered barrel shape.

The skew chisel is not the easiest of tools to control, and can cause a lot of problems, especially if the grain is very twisted. I rarely use it for planing cuts unless, as here, I am forming tapers and can be reasonably sure that I will be cutting with the grain. If you are not used to using a skew chisel, raise the tool rest so that the chisel is almost horizontal and is cutting on the crown of the cylinder (picture 10).

Looking down at the tool, it is angled so that its edge is presented diagonally across the top of the workpiece. Lay the tool on the work with the bevel gently resting on the revolving cylinder and, by lifting the handle slowly, engage the edge of the tool. Slide the tool along

the tool rest, without altering the angle, using the lower half of the cutting edge – this area lies directly adjacent to the tool rest and will reduce the risk of the tool twisting.

Make small V-cuts with the extreme point of the tool, which is held on its side with the longest side down. Cut a thin slice off one side and then repeat on the other side, steadily enlarging the V by taking repeated cuts (picture 11). After sanding and polishing, part off the work and finish off the ends by hand. The fitting needs to be de-greased and screwed into the handle with some epoxy to hold it permanently in place. Now you're ready to toast your new creations! ■

then take repeated forward cuts to the side, widening the hole gradually until you have a enough area to take your largest wine bottle. It's a good idea to add an extra centimetre or so, just in case it is needed.

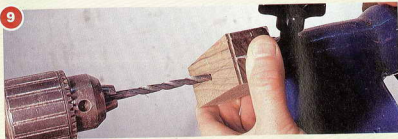
Form the tapered inside wall of the coaster with the small gouge, using the same slicing cut you used to trim the sides (picture 5). Be careful to make the taper intersect exactly with the flat surface of the floor of the coaster, and lift the gouge away at the end of its run so that it does not form an unwanted groove at the junction. Slice the outer side of the coaster with the same gouge, feeling the wall between your fingers to check its thickness.

To produce the moulded plinth at the base, make a few slices with the gouge, breaking off the run a centimetre and a half from the base (picture 6). The top of the plinth can be decorated with a small bead, or in this case a corvette, by first forming a square step in the base and then hollowing out the corner section with a small long-nosed spindle gouge (picture 7).

Make the small, round moulding on the top of the coaster's rim, using a freshly sharpened beading and parting tool. First cut two tiny rebates on each side of the rim using a parting cut, then work the middle square section into a round half-bead, by gently dabbing at the corners with the tool at different angles (picture 8). To achieve a crisp, clean cut using this simple technique, you will need to hone an extra sharp edge on your beading tool.

Sanding and polishing

To sand the work, you need to start off with a fairly fine abrasive – about 240 grit aluminium oxide – followed by 400 grit. Cut the abrasive into small pieces and fold it into three, so that you can work the stiffened edges into the corners of the mouldings without losing any crispness of detail. After sealing with a coat of French polish, apply some wax and burnish with a soft cloth until the full colour of the wood gleams through. ■



It's easier to drill the hole for the corkscrew fitting while the handle is still in the square section



You get a very clean finish with a skew chisel, as long as you are cutting with the grain



The V is enlarged, and some minimal decoration created, with the point of the skew chisel

Rustic patio chair

Wade Muggleton's thoughts turn to the onset of summer, as he crafts a set of rustic patio chairs in oak and hazel. They're simple to make and easy to amend to suit your own designs – a perfect project for a weekend's idle tinkering!

With summer approaching and the season for barbecues nearly upon us, this simple rustic chair makes an ideal weekend project. Comfortable and good looking, it will grace any patio and provide an ideal perch on which to sit out on those long summer evenings – and you can produce it using simple materials and only a few basic tools.

This is an ideal project if you're not too worried about following what it says in the magazine gauged millimetre. Rustic furniture is all about making the most of the materials you've got, following the basic rules of good craftsmanship to mould them into something that's useful, attractive, strong and unique. So consider the way I made this chair, then put your own creative slant on it and get down to work – and before long, you'll be relaxing on the patio, glass of Pimms in hand, as you watch the shadows lengthen at the end of another balmy summer's day.

Materials

Using simple rustic materials, this chair consists of an offcut of oak board and a selection of hazel sticks (picture 1). The oak is used for making the seat, while the legs and crest rail are made from $1\frac{1}{2}$ in hazel and the back sticks from $\frac{7}{8}$ in.

The hazel is the type of material often sold as beanpoles and pea sticks. Alternatively, it could be cut from a hedgerow or local wood. You must always obtain the landowner's permission before helping yourself to materials in the countryside, however – failing to do so would be every bit as bad as stealing flowers from your neighbour's garden.

Making the seat

I have to confess that when it comes to shaping the seats of



chairs like this, I don't follow the most traditionally rustic of methods. You need to dish it for comfort, and I find that an Arbortech is splendid for removing the bulk of the waste wood (picture 2). After this, however, I turn to my Clifton convex spokeshave to further refine the shape, which is altogether more peaceful (picture 3).

As this is a rustic piece, we are not looking for a cabinet level of finish, so a few tool marks add to the character. That's 'tool marks', though, not

'machine marks' – few things look more out of place on rustic work. So don't worry too much about achieving a level of perfection that wouldn't really be in keeping anyway – I just tidied it up with a quick blast of the belt sander (picture 4).

Making the legs

The legs, which are made from $1\frac{1}{2}$ in hazel, have one-inch pegs which can either be turned on a lathe or cut with a rounding plane (picture 5). The holes in the seat are drilled with an auger, using a sliding bevel as a

guide to the angle (picture 6) – the amount of rake is largely a matter of taste, but a reasonable outward rake gives a greater stability to the chair.

The legs are then driven in with a mallet (picture 7), having first been given a coat of PVA wood glue, and are wedged from the top. As usual, position the wedge at 90 degrees to the grain direction of the seat, so as to avoid the risk of splitting the seat. Finally, level up the legs, allowing for a slope on the seat from front to back – this greatly increases the comfort the chair will afford.

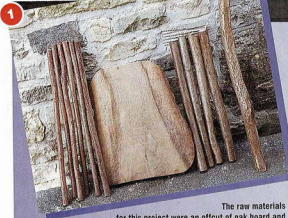
Making the back

Having completed the seat and legs, the next step is to drill the back sockets (picture 8). Again, the angle is down to judgement; I used a $\frac{3}{4}$ -inch forstner bit in an electric drill, judging the angle by eye. The forstner gives a clean cut and a flat-bottomed hole, ideal for this sort of job.

The back sticks themselves are made from roughly $\frac{7}{8}$ in diameter hazel. They have $\frac{3}{4}$ in pegs put on their ends, using an Asham rounding plane (picture 9). An ideal tool for this type of rustic work, this is operated somewhat like a giant pencil sharpener – it has a $\frac{3}{4}$ in opening on its end, so that its angled blade shaves the stick down to three quarters of an inch.

Using a slightly curved piece of $1\frac{1}{2}$ in hazel for the crest rail, I slightly increased the spacing of the holes over that in the seat, to give a splayed look to the back. I suggest that you use the forstner again to drill the crest rail (picture 10) – this allows for a deep hole, without the danger of a spigot coming through the top.

When you're ready, give the sticks a dry run to ensure that they're going together satisfactorily (picture 11), then apply plenty of PVA and drive the components together with a



The raw materials for this project were an offcut of oak board and a selection of lengths of hazel



You can start dishing the seat with an Arbortec, which quickly removes the waste wood...



...before finishing off with a convex spokeshave, which allows more precision and will leave some nice rustic tool marks



Once you've worked the seat, a belt sander will quickly tidy up the end grain and other rough areas



The one-inch pegs on the legs can be cut with a rounder or turned on a lathe - in this case, a proper rustic pole lathe

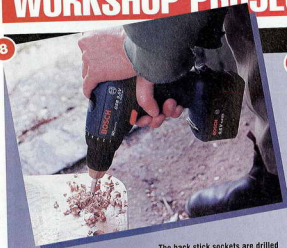


The legs are glued and driven home with a mallet, then wedged from the top



When you're drilling the leg sockets into the seat, a bevel will prove a useful aid to guiding the angle

8



The back stick sockets are drilled using a $\frac{5}{8}$ forstner bit, giving a good clean, flat-bottomed hole

9



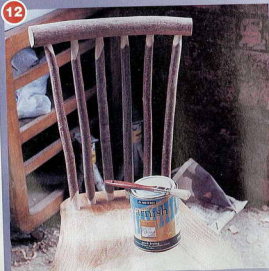
A $\frac{5}{8}$ -inch rounder plane is used to produce the pegs on the back sticks

10



Like the seat, the crest rail is drilled with a forstner bit, which is ideal as it has no spigot to break through

12



All you need to finish the chair is a couple of coats of varnish – anything more would look fussy on a piece like this

11



Give back sticks a dry-run to check for fit before finally gluing them up and putting the assembly together

Hand mitre saws

Hand-powered mitre saws promise to add effortless accuracy to one of the trickiest parts of woodworking. But their flexibility is only any use if they can be relied upon in the workshop – Jeff Loader assesses what four of the top models can do for you

When the need arises, the cutting of mitres can present a few problems – the main one being their accurate execution. Whether they're for a picture frame, box, wooden moulding, skirting or architrave, any inaccuracies, however slight, will be all too evident. Unless you are a real wizard with a handsaw, you will undoubtedly cut more than the occasional wayward effort.

For really fine work, an errantly sawn mitre can be made good with the aid of a variety of home-made shooting boards and trimming aids. But it is much better, and less time consuming, to cut it right in the first place. Some form of sawing jig is the obvious solution, but choosing the right kind merits a little thought.

A wooden mitre box, or even a couple of mitre slots cut accurately into the fence of a large bench hook, may suffice in the very short term, but are far from satisfactory and will soon be prone to wear. There are one or two small metal fixed-fence mitre cutting jigs available, which can be used in conjunction with a fine-toothed backsaw, but these can only accommodate batons and mouldings of a small cross-section. A good general solution is to opt for a hand-powered



mitre saw of the kind that's on test this month.

This type of saw may look contemporary, but they have a long pedigree – one bought a century or so ago will be like those still on sale today. Now they are available in various sizes; some larger capacity examples are tested here.

Very basically, each tool comprises a sort of frame saw and a cast metal table unit. The frame holds and tensions the

thin, narrow blade, while the table unit provides vertical uprights to locate its guides. Blades are available through a range from 10 to 32 tpi, most saws come supplied with either a 14 or 18 tpi example for general cutting duties. The great advantage of these types of mitre saws is that the table unit allows the frame saw to be presented at various angles, thus enabling mitres of differing angles to be cut.

Most good models have preset angle stops which are handy for speedy reference, and some are capable of cutting compound mitres. This is where a length of timber is mitre-cut on its vertical and horizontal planes together, all in one saw cut – a useful facility when cutting coving, certain cornice mouldings and various complex joints. However, all good mitre saws will also enable wooden batons and narrow boards to be

SPECIFICATIONS

Model	Axminster 607	CK 1129/2	Draper MS600	Nobex Champion 180
Blade length	620	600	550	630
Blade depth	45	45	45	40
Table length	500	400	400	500
Table width	80	80	80	115
Max cut height	155	150	150	180
Max 45-deg cross-cut	110	100	100	125
Max 90-deg cross-cut	210	170	165	200
Max 45/45-deg compound cut	110	100	n/a	-
Regular preset angles	9	9	9	9
Compound preset angles	5	3	n/a	7*
Price including VAT	£39.95	£63.50	£52.88	£99
* Grooves in table				

TEST CATEGORIES

- **Set-up:** How straightforward it is to prepare each saw and set it for use
- **Build Quality:** The general standard of construction
- **Ergonomics:** How 'user friendly' the tool is
- **Blade Changing:** How easy it is to change blades when one with more or less teeth is required (In practice, you probably won't need to do this very often)
- **Performance:** How well the saws perform on various cross-cutting, mitring and, where appropriate, compound angle cutting tasks

cut at a regular right angle. If it can do this accurately, the primitive bench hook becomes almost redundant.

As you can see, the mitre saw is a versatile tool that's useful for a vast range of applications. Equally at home in a miniaturist's workshop or the back of a joiner's van, they are likely to find a home in many woodworkers' tool kits.

Set-up

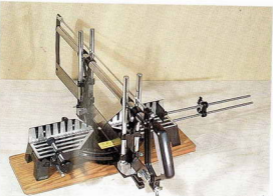
A quick glance at the CK and Draper saws will inform you that they share some components of similar design, and possibly the same manufacture, and that the Axminster and CK's manual are obviously from a similar source. Talking of which, a good instruction manual is always welcome with any tool to get you off to a flying start. The manual from Draper is rather spartan, to say the least, while the ones from CK and Axminster can be described as just about adequate.

Fortunately, there is little pre-assembly required with these three saws, so it doesn't take a degree in rocket science to set them up. The Axminster took a little longer than the other two, but in general I had no problems with these three – though the thread of the Draper's blade clamp thumb screw was slightly damaged, making it awkward to register and turn. Of the whole group, the CK was a trace more straightforward to set up than the rest.

No, I haven't forgotten the Nobex Champion – it's just that I was sent a demonstration model that was fully set-up for. I've set up brand new models in the past, however, and Nobex certainly provides the best instructional literature – the illustrations leave you in little doubt about where, and how, each component should be put together.



This is the kind of work that can be produced using a mitre saw – angles like these are virtually impossible to cut freehand



Of those which required setting-up, the apparatus from CK was the most straightforward



The Nobex saw has a brilliant stepless pivot arm lock lever – which is needed to true up the blade to the 90-degree preset

Build quality

Axminster's mitre saw is the cheapest on test here, but it provides a few pleasant surprises. It has a well designed vertical plane mitring facility (for compound cutting), with a twin swivel mechanism incorporating two sprung lock knobs and two securing screws. The lock knobs can be located in five angle presets or not utilised (a tension pin keeps them out of the way), leaving the lock screws to secure the saw frame at the desired angle.

Other good features are the table's true, accurate working faces, a good 25x12mm rounded-rectangular chrome saw frame bar, veneered MDF baseboard, metal blade guides and a good, long, adjustable work support. On the minus side, there are only two saw guide rods, the handle is rather plasticity, there are some rough edges on the table casting, the blade has very little set and some of the preset angle stops, mainly 90, 45 and 45-degree compound, are inaccurate.

On balance, the CK model is of a similar constructional quality to the Axminster saw. It is also guilty of mirroring many of its faults, with the worst crime being a far from accurate 45-degree preset. Like the Axminster model, it has a neat angle setting pivot arm lock lever, but relies on two hex bolts to secure the pivot (over-riding the preset system for stepless angle setting), rather than using a more sophisticated lever arrangement. It has a good metal saw handle with a grey rubber grip.

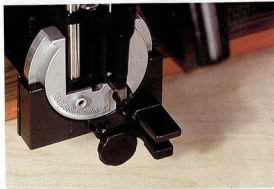
The Draper unit is visually similar to the CK, but key components and facilities are far more accurate. Its 90 and 45-degree presets present the blade true to the table's fence, and both the table's working faces are squarely at a right angle to each other. The table's main surface is nicely flat as well. The only thing to spoil the party here is that the two fence faces remained a touch away from being absolutely parallel.

BEST SET-UP
70% CK

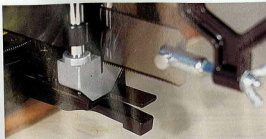
TESTAREA



ABOVE & BELOW: Axminster's 607 is well designed for compound mitering, with good, solid controls



ABOVE & BELOW: CK's 1129/2 in compound mitering mode. The pivot arm lock lever is neat; note the hacksaw-type blade retention



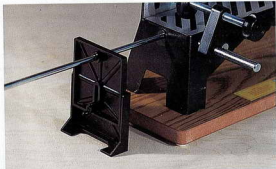
Rather surprisingly, the apparently similar blade guides are plastic, whereas CK's are metal, the large base feet are of a brittle plastic and the saw has no compound mitering facility. One or two other little features are less than satisfactory, but on the plus side I really liked the two large aluminium fence height extensions.

For those familiar with Nobex saws, the first notable aspect of the Champion's construction is its handle. This is of the same cheap plastic construction as the Axminster's, and appears to have replaced the old pistol grip unit that doubled as a quick tension-release lever. Another notable change is the two work clamps – these have a 'speed-clamp'

Unfortunately, the blade was a couple of hair's breadths away from being presented exactly square with the 90 degree preset, but thanks to a brilliant stepless locking lever (which over-rides the angle preset), this can be corrected. There were no such concerns with the 45-degree preset however, as this was spot on.

BESTBUILDQUALITY 85% Nobex

In this category, each saw was assessed for its practical working relationship and operation with the user. Obviously, this subject crosses over to one or two of the other categories (such as performance



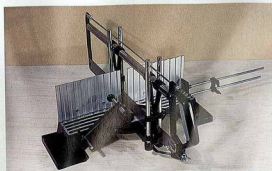
A good work support, like this one on the Axminster saw, adds a great deal to the tool's 'usability'

ratchet style mechanism to fasten, each incorporating a quick-release lever, which replace the more basic versions (which, incidentally, are still featured in the manual).

The Nobex is the largest of the four saws' tables, and it is pleasing to find that all its working faces are flat, true and, where appropriate, square in relation to each other.

and blade changing), so we will cut to the chase straight away. All the models proved to have at least adequate ergonomic qualities, but if a decision is needed, the most user-friendly, just, proved to be the Nobex.

BESTERGONOMICS 75% Nobex



The Draper MS600 – a good buy if a compound mitering facility is of no interest to you



The ratchet-style work clamp on the Nobex is well made, but cannot be used satisfactorily for overhead clamping

Blade changing

Changing blades on the Axminster model only takes a couple of minutes – just release the tension via the top wingnut, unclip the blade, fit a replacement and reverse the procedure. The Draper proved almost straightforward, but was much kinder on the operator – the Axminster's problem is that its wingnut is very unkind on the fingers when it's retightened.

The CK has almost exactly the same components as the Draper, but changing its blade proved a real fiddle. This became easier once the settings had been adjusted on the top tensioning bar.

That leaves the Nobex, on which blade changing is basically okay but proved a bit of a fiddle. Relieving the blade tension, via the large and comfortable wingnut, I used the supplied allen key to undo the two blade securing screws, unclip each of the two blade retaining plates and remove the blade... whereupon the whole frame promptly fell apart! I'm not totally sure why this saw's blade retaining system has to be more complex than the others tested here; but it may be that it's a contributing factor to its generally high standards of accuracy and performance, in which case it's a price that's worth paying.



Draper's pivot arm lock lever looks good, but falls short of the standard set by the others

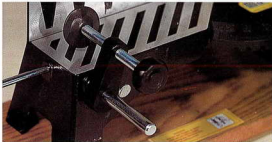
BESTBLADECHANGING 88% Draper

Performance

The best cutting feature of the Axminster saw was undoubtedly its compound mitring facility. A reasonably good 45/45 degree compound can be produced in relatively small stock, with only a little inaccuracy. In general, regular mitring of small stock (2x1in and smaller) proved fairly accurate, although there was evidence of minor vertical blade deflection.

On larger stock, however, the Axminster struggled. Cutting 6x1in, placed vertically on the table, produced a cut edge that was approximately 1mm from square across the timber's width and 3mm out of true when 45-degree mitred (although the actual 45-degree angle across the thickness of the timber was spot-on). When the 6x1 was cut horizontally on the saw table, accuracy across its width was improved (with only an approximate 0.5mm discrepancy), but there was evident vertical blade deflection over the timber's thickness.

The accuracy of cutting thicker stock (such as 2x2in) proved disappointing, and this could be blamed on the blade. Admittedly, it is not really



ABOVE & BELOW: The work clamps on the Axminster, CK and Draper saws vary in quality, but can all be used with ease for overhead clamping



designed to cut timber of more substantial thickness, but nevertheless it proved 'sticky' in all sizes of stock and would be vastly improved if the teeth had a broader set. The work clamp proved adequate, and the adjustable long stock support is a good feature. The stepless angle lock lever proved a bit awkward to operate, as it needs to be pushed right under the table to sufficiently lock the pivot arm, and the rather rough cast edge of the table can catch you hand as you do so.

Two long, thin adjustable rods provide cutting depth stop control and are useful when cutting housings or halving joints. These are different to the other models, which have adjustable collars around two of their guide rods. Another neat feature is the two 'rest' clips, which allow the saw frame to be

rested out of harm's way on top of the guide rods while the workpiece is put in place – a feature it shares with the Nobex.

In general, however, this is not a particularly smooth saw to operate. It appears rather rattly during use, which could have a lot to do with the blade and amount of play in the saw frame and guide rod arrangement.

The CK proved not to be a bad performer. In particular, 90-degree cross cuts in small stock provide almost perfectly square-cut faces, but the 45-degree preset was approximately a degree out and had to be overridden. The other presets seemed okay, but sawing 6x1in stock, placed vertically on edge, at 45 degrees provided a sawn edge that was approximately 2mm from square. Rather surprisingly, then, cutting the same timber with the saw preset



ABOVE & BELOW: Despite performing best, the Nobex is compromised by its length stop – those of the Axminster, CK and Draper leave it behind without needing to excel themselves



at 90 degrees provided pretty accurate results, though cross-cutting it with the timber placed flat on the table proved inaccurate both across the width and thickness. Straight cross-cutting thicker timber was very good indeed, and compound

mitring was fairly good – though this required the guide rod assemblies to be unbolted and reset, which is a little tiresome.

Generally, the Draper was just a little more accurate than the CK, cross-cutting small stock at 45 and 90 degrees with

satisfying accuracy. Mitring, on the other hand, proved disappointing, as did 90-degree vertical cross-cutting of 6x1in, with the timber's edge placed on the table. With the timber placed flat on the table, however, presented an end that was only about 0.5mm away from true, with minimal blade deflection. Cutting small stock with the other angle presets was okay, but this saw has no compound mitring facility.

The Draper's work clamp is disappointing: when the work clamping screw is fastened against the work, sufficient torque cannot be applied by hand to the lock screw to prevent the arm from sliding along the bar. The long pivot angle lock lever may look the business, but in action it is nowhere near as convenient to operate as the others.

Cross-cutting relatively small stock with the Nobex, at whatever angle, generally presented a sawn face that was pleasingly accurate, especially for a tool of this sort. Cutting thicker stock proved good; the accuracy achieved by sawing 6x1in was marginally better than the rest, but was not as good as could be expected from what is a much more expensive model.

Unfortunately, I didn't have much success with the rather basic compound mitring facilities. Placing the stock's edge in a groove in the table is just not good enough, especially with stock of small cross-section. Two of the others have a better system, and so should this. In addition, while the two ratchet-style quick-release clamps are of good quality, I found their capacities somewhat limiting during use – for overhead clamping, they are presented at an odd and unsatisfactory angle to the workpiece.

It's worth mentioning here that all the saws on test had grooved table tops to help disperse sawdust. I liked the slanted grooves of the Axminster model best, as these seemed to offer the optimum support for a workpiece. Also,

with the exception of the Nobex, all the models sport a similar length stop assembly (for repeat component length cutting), which proved okay in use. The Nobex just came with a long bar, which presumably should have some form of attachment fitted to it. The manual was no help, as it just illustrated a basic 'bent rod' length stop – which is less than suitable for short lengths anyway ■

BEST PERFORMANCE
85% Nobex

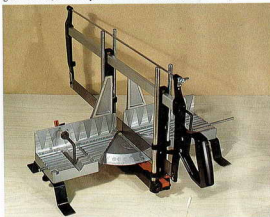
TWVERDICT

Mainly due to its reasonably good performance, the Nobex Champion lives up to its name. At around twice the average price of the others, however, it poses the question – is it worth it? The general answer is yes, but there's still plenty of room for improvement in its design and construction.

The CK 1129/2 offers fair quality and performance for a reasonable price that should not disappoint unduly, while if a compound mitring facility is of no interest to you, the Draper MS600 appears a pretty good buy. For the budget conscious, the Axminster 607 could turn out to be a good bet, especially with its natty compound mitre system. However, if you do buy this, I would recommend that you get a better quality blade at the same time, as this will surely mean a great improvement in its cutting performance ■

INFO

Axminster Power Tool Centre
Tel: 01297 33655
CK Tools
Tel: 01758 704 704
Draper
Tel: (023) 8026 6355
BriMarc (Nobex)
Tel: 0845 659000



The Nobex Champion comes out on top here. But there's plenty of room for improvement, especially given its hefty price tag

TW TEST SCORES

Model	Set-up	Build Quality	Ergonomics	Blade Changing	Performance	Average %	Price Adjusted %
Axminster 607	73%	65%	70%	85%	55%	70%	112%
CK 1129/2	78%	65%	73%	78%	68%	72%	72%
Draper MS600	75%	78%	70%	88%	70%	76%	92%
Nobex Champion 180	75%	85%	75%	73%	85%	79%	51%

Rexon WG180A Whetstone Grinder

Whetstone grinders are desired by many and owned by few, largely because the ones we all lust after cost a small fortune. Rexon's WG180A retails at a touch under £100, however – Jeff Loader takes a look to see what you get for your money

To every woodworker, there comes the time when the iron or blade of one of their cutting tools needs its bevel reground. For the majority of people, this is an irritating interruption, and I doubt that for as long as woodworking has existed, there have been many people who've really enjoyed sharpening the blades of their tools.

Probably the most customary contemporary means of doing this is to use a high-speed bench grinder. The drawback of this method is that heat is generated quickly around the cutting edge and, even if you are very careful, you risk drawing the tool's temper. This usually occurs during the final stages of grinding – as quickly as you can exclaim a four-letter expletive, the edge has turned that horrible tell-tale shade of blue and the grinding process must frustratingly be started anew.



The grinder with its blade sharpening jig attached and ready for action

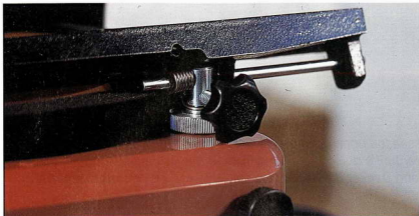
Whetstone grinders are a real boon for regrounding blade bevels, because the grinding wheel usually turns more slowly and is continually doused in water to help it maintain a cool cutting edge. The main drawback of these machines, however, is that they cost about the same as a week's spring holiday in a chalet by the sea – which, given that you'll never do any actual woodworking with it,

makes them a galling purchase for you and an inexplicable one for your family.

Rexon's WG180A, on the other hand, retails for under a hundred pounds. This alone makes it interesting to many people who'd not normally even begin to think about buying a whetstone grinder... and if it can match its price with even an acceptable level of performance, it's clearly going to be a winner.

SPECIFICATIONS

Power input	125w
Wheel speed	350rpm
Wheel diameter	180mm
Wheel bore	12.7mm
Wheel thickness	20mm
Price	£99.00 inc VAT



The tool rest is fully adjustable – however, you may find that the mechanism stops you getting it as close to the wheel as the manual says you should

First impressions

The basic working principles of this type of grinder is fairly straightforward. A horizontal circular grindstone rotates on a base unit, with an adjustable toolrest straddling it and a reservoir feeding water on to it. Unlike a vertical whetstone, this model will produce a bevel that is flat ground (the former will hollow-grind the bevel). Whether this is an advantage or disadvantage is a matter of debate, but a flat-ground bevel will provide more strength behind the cutting edge. This can be better for the blades of tools such as mortice chisels.

The motor of this model is fully enclosed in the red moulded plastic base unit, which appears sufficiently robust and has a nice shiny finish which proved to be good for wiping clean. Moulded plastic has appropriately also been used for the water tanks, and the tool rest is of cast iron.

On first impressions, the machine's build quality appears fairly good, although the tool rest is a little concave along its length. A tool clamp, provided as standard, is designed to hold a planer knife; it runs along the tool rest so that the bevel is ground parallel on the stone.

Set up

Little needs to be done before grinding work can begin, but I did experience trouble in setting up the components of the tool rest. The manual states that the distance between the rest and the wheel should be no more than 2mm, but I found this difficult because the tilt adjustment knob (which enables differing degrees of bevel to be ground) impeded the rest from being lowered sufficiently and set parallel, as did a cast flange on the underside of the rest.

It was here that a sense of *deja vu* came over me – where had I come across this problem before? A quick rummage through my woodworking library soon put me right. In a fine American publication, I read of a chap experiencing a similar problem with another almost identical model from a different very well-known manufacturer!

Performance

When switched on, the machine runs very quietly indeed, with hardly any noticeable vibration. Its four rubber feet give it a good stable seat on the workbench and help prevent slippage. The wheel did seem to rotate a little eccentrically, however, and tended to grind an iron with a 'kangaroo' motion.

The stone did not appear to be damaged, but was certainly not entirely flat. Unfortunately, the manual is rather light on instructional text, but slight redressing may have helped. That said, once I had learned all the grinder's little nuances, I found that it could be used satisfactorily on a variety of irons and blades.

The irrigation system worked adequately, at least until the feed reservoir became half-full. At this point, the water pressure rapidly became inadequate, meaning the reservoir had to be topped up. I found that I had enough water flow for grinding the bevel of a two-inch plane iron before this was necessary, however, and the waste tank collected water as it should and was straightforward to detach and empty.

Removing the grindstone is a straightforward matter of removing a bolt and flange washer with the allen key wrench provided. Unfortunately, the manual is a little confusing, as it instructs you to turn the wrench in the wrong direction (it's actually a left-hand thread), but once you work out that you need to turn clockwise to unfasten it, your troubles are over. You should do this periodically, so you can clean away all of the deposited sludge and residue from the base unit – this will help ensure that the used water will flow away unimpeded directly into the waste tank ■

TESTAREA



Performance is satisfactory, if not exactly silky-smooth – the Rexon unit is a little unsophisticated, but certainly does its job

TWVERDICT

This is not the best or most sophisticated whetstone grinder on the market, but it certainly gets the job done. Partner this machine with a high-speed grinder (which almost any tool outlet now seems to stock for less than the cost of half a tank of petrol), and you have a reasonably effective grinding set-up for £130 tops. Which means you can banish those grinding 'blues' – and still be able to afford your week away by the sea! ■

INFO

Rexon
Tel: 01709 361158/821966

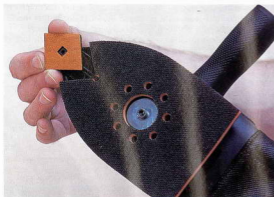
Black and Decker KA220E 3-in-1 Multi Sander

With the new Grand Prix season upon us, our ever-diligent Test Editor has skived off to watch the TV. So his better half's doing the testing instead: here's Jennie Loader's verdict on a sander from Black and Decker that should be suited to makers, restorers and DIY addicts alike

A few years ago, Jeff and I saved a narrow chest of drawers from an ignominious exit into the local municipal tip. It's an early 1950s' model made of plywood, and had been finished in that miscellaneous dergy brown colour that appears to have been so prevalent then. Due to its convenient size, it has been sat in our garage ever since, storing those various sundry items that Jeff can't bear to part with because he's convinced they'll come in handy one day (yes indeed, you never know when those old bakelite fittings and broken bike pumps will save the day).

Well, at long last something old and knackered did turn out to be just what we needed. It was, of course, the chest of drawers itself.

This of course meant that it had to be cleared, which in turn means its contents ended up pushing our loft a little closer to the point when it reaches critical mass. And thus emptied, there it stood, in the middle of the garage, awaiting refinishing.



The delta base has a detachable diamond-shaped tip – this is the bit that wears fastest, and a replacement is thoughtfully included

And it waited. And waited. And that pressing urgency for more storage got more pressing, and more urgent.

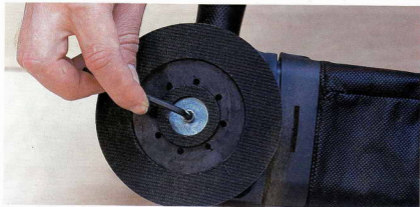
And then the day dawned – Jeff was busy watching motor racing on the telly, and the kids were busy killing computer-generated foes – when I realised that if I was ever going to get

any use out of this chest of drawers, I was going to have to take matters into my own hands. So that's what I did, taking Jeff's latest test equipment into my own hands in the process and leaving him being rant-ed at by Murray Walker while I gave the chest, and Black and Decker's KA220E, a thorough going over.

SPECIFICATIONS

Power Input	155w
Speed	12,000-21,000 orbits per minute
List price	£89.92 inc VAT

Includes: Multi sander, dust bag, adjustable handle, round base, pointed base, sanding sheets, spare tip component (pointed base) and kit box



The rounded base is secured using an allen key, which is stowed neatly in the body of the sander. Random orbital action means no unsightly ring marks, but this was the least effective of the tool's three modes

Bases loaded

Presumably, Black and Decker has attributed the 3-in-1 part of its tool's title to the various combinations and uses of its bases. The pointed base can be fitted point-forwards for detail sanding, and point-rearwards for sanding large areas with corners that have easy access. A round base is supplied as standard, too, and with this fitted the machine is designed to smooth large areas.

A pleasing feature is that Black and Decker has designed this sander with a random orbital facility, which means the sanding base's orbital movement is combined with eccentric rotation. As a result those tell-tale rings or swirl marks you often get from regular orbital sanding won't be a problem.

The bases are constructed to accept 'quick fit' velcro abrasive sheets, with punched-holes to facilitate dust removal. A neat feature of the pointed base is that its tip may be removed, turned and replaced when the worn – this helps maximise the working life of the abrasive, but when it becomes too used a replacement must be fitted.

After much use, the actual base tip component may become too worn for acceptable use. Fortunately, spare tips are available as accessories – and one is conveniently supplied in the kit box.

The removal and refitting of a base is very straightforward, thanks to a clear instruction manual and the fact that only one allen key is required for the two bases. Full marks to Black and Decker for not only

supplying an allen key, but also for incorporating an excellent storage recess for it in the base of the sander's handle.

Getting into shape

Overall build quality is generally what you might expect from a power tool of this sort, with on-off and speed selection switches that are very conveniently positioned and easy to operate. I also really liked the curvaceous lines of this sander's body, which made it easy to hold and control comfortably, with a variety of hand positions.

The adjustable side handle is especially impressive; this is held to the body casing by a metal ring clip, which allows it to be set in a variety of positions around the tool. For comfort during use, this is an excellent ergonomic feature and, in the unlikely event that you don't like using the handle at all, it can even be removed altogether.

A dust collection bag has been manufactured to fit neatly beneath the main handle. Its clever design and neat shape and size made me totally unaware of it while operating the sander. It was reasonably straightforward to fit and remove, although when fitting it you do need to be careful to ensure that both of its locating lugs are 'caught' sufficiently.

Performance

I decided to tackle all the chest's nasty hard-to-get-at small places first, which meant laying into it with the delta tip. It worked very well, making short work of these 'detail' areas. There was, however, an uneven join line between the diamond tip and main delta base abrasive papers,

and this resulted in the edge of the main sheet lifting off in certain instances.

Reversing the delta pad, I sanded the panelled sides of the chest of drawers – here again, the machine performed very effectively indeed. Sanding the six drawer fronts with the round base, however, it required me to fit a coarse grit grade of abrasive paper to obtain a comparable performance.

Despite this, the sander's overall performance was efficient and effective. It did seem to vibrate excessively in use, however – I found that I could only stand to use it in ten-minute bursts, with intervals of at least a couple of minutes in between. During these breaks, I found that my fingers tingled for half a minute or so after switching the sander off! ■

TESTAREA

TWVERDICT

For undertaking this type of sanding task, the KA220E coped admirably. For sanding the mouldings, however, I would have liked the profile base attachment facility its larger KA230IEK stablemate boasts.

Would I buy one? Well, I found it easy to set up and use, but I really did not like the excessive vibration that was very evident in use. If it were more refined, however, it could prove very useful if you plan to sand a lot of panelled doors or renovate old (but not antique) second-hand furniture.

If you fancy one, my advice is to shop around for the best deal. The list price is a bit steep, but on yet another shopping trip for children's clothes and shoes I spied one for sale at a price of under sixty pounds – at this price, it represents reasonable value for money ■



Switches and general build quality are of the sort of standard you would expect from a tool of this price and type

INFO

Black and Decker
Tel: 01753 511234