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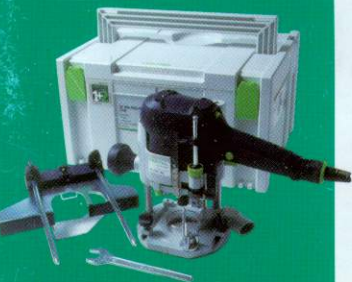
INSIGHT

Timber trade jargon buster



PROJECT

Make this round wall clock



ON TEST

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Issue 44



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routers



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bandsaws



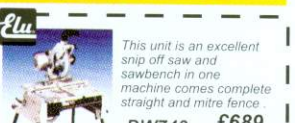
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Editorial

The time approaches once again when you get to show us just what you can do with a router. I am of course talking about our *Routing Challenge* competition at the International Woodworking and Turning Competition being held at the NEC in October. We're giving you the chance to enter earlier this year, so you've got more time to think about it and come up with that winning piece.

Full details and entry forms can be found on page 38. If you're looking for inspiration then there are plenty of quality projects in this issue to choose from. Whether it's a simple, but effective piece such as the round wall clock on page 17, a useful item such as the teddy bear bed on page 29 or something a little more advanced like Peter Dunsmore's classic Canterbury on page 70, there's something for everyone whatever your skill level.

Whether you're a beginner or more advanced router user you will no doubt have invested quite a lot of money in your cutters so you'll want to keep them in top condition. Ron Fox offers his expert advice on keeping them clean and sharp on page 21. Confused by timber and its associated trade jargon? Gordon Warr has been busy visiting timber yards and compiling his definitive guide to wood which starts this issue on page 57. If it's new equipment you're interested in then don't miss our tests of the new Leigh dust extraction system (p28), Trend Snappy (p55) and the latest Festool router on page 66.

This issue we're also asking you to let us know what you think of *Routing* in our Reader Survey on page 63. We'd really appreciate your comments and once we've had time to analyse the results we'll be able to tailor the magazine exactly to your needs. Take the time to send us your completed form and you'll even be in with the chance of winning one of JCB's latest power tools in our prize draw. Speaking of prize draws there's another great competition for you to enter on page 14 where you could win one of five top-of-the-range Makita routers. This will no doubt be popular so don't miss out and get your entries in early!

Neil Mead

Published by
Nexus Media Limited
Nexus House, Azalea Drive
Swanley Kent BR8 8HU
Tel: 01322 660070 Fax: 01322 616319
www.nexuswoodworking.com
Nexus Special Interests is a wholly owned
subsidiary of Highbury House
Communications plc

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Printed by
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Origination by
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SUBSCRIPTIONS

UK - £17.70 p.a.
Overseas (surface mail) - £27.48
Overseas (air mail) - £31.32
Tel: 01858 438897



NEXUS



Routing issue 44
13th July 2001
Published six times a year
Back issue & Subscriptions:
Nexus Subscription Services, Tower
House, Sovereign Park, Lathkill Street,
Market Harborough, Leics, LE16 9EF

Back issue/Subscription hotline:
01858 438897
North American Subscription Agent:
Wise Owl Worldwide Publications,
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ISSN 0968-266X

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What to look forward to in issue 45 (Oct/Nov 2001)

**MAKITA
COMPETITION
PAGE 14**

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over £1600 worth of
the latest
Makita routers

17



50

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MODEL	MOTOR	RPM	EX VAT	INC VAT
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B&D KASBEK†	600W	30-200	£69.95	£82.19
Makita 9911*	650W	75-270	£84.95	£99.82
Makita 9404**	1010W	210-440	£169.95	£199.69

* Dust Extraction facility † Supplied with kit box

Clarke 8" COMPOUND MITRE SAW CMS200

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MODEL	TYPE	MOTOR DEPTH (w)	CUT 90°/45°	EX VAT	INC VAT
Skil 5140H	DIY	400	40/26	£33.99	£39.94
B&D KS850	DIY	1100	50/33	£39.95	£46.94
Skil 5466	PRO	1350	66/51	£84.95	£99.82

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MODEL	CHUCK SIZE	SP	MOTOR (w)	EX VAT	INC VAT
CDP5DD	13mm	5	250	£37.95	£44.59
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CDP15B	13mm	5	300	£89.95	£105.69
CDP20B	13mm	12	370	£119.95	£140.94
CDP25F	13mm	12	370	£134.95	£158.57
CDP30B	16mm	12	510	£149.95	£176.19
CDP35F	16mm	12	510	£179.95	£211.44

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MODEL	CIRCULAR SAWS (mm)	JIGSAWS	ROUTERS	EX VAT	INC VAT
Variotec 66	Up to 66	All jigsaws	DIY Routers†	£79.95	£93.94
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*In conjunction with parallel stop & curve guide accessories

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Cutting edge

New plastic guide bushes

Two new sets of hard wearing, injection moulded, plastic guide bushes have been launched by Trend. They come in both even and odd sizes, and have been designed to fit directly to the Trend T5 and T9. Alternatively, Trend's Unibase can enable the bushes to be used with virtually any router currently available in the market place.

Designed for router users who fabricate their own templates, the guide bushes are 60mm in diameter, and have two countersunk holes for fixing to the router. With a wall thickness of 1.5mm, the inner bush projects 6mm from the base of the guide bush, making it ideal for following 6mm plywood or MDF templates.

The two sets comprise a set of 12 even sized guide bushes ranging from 10mm to 32mm in diameter, and a set of 12 odd sizes ranging from 11mm to 33mm diameter. Each one costs £19.95 plus VAT.

For more information and stockist details phone 0800 487 363.



We're on your trail!

To help homeowners avoid cowboy contractors, improveline.com has launched a new consumer electronic directory which provides details on over 150,000 contractors and trades people. The service is free, and aims to enable users to make more informed decisions when choosing a contractor, by allowing them to read customer comments.

Contractors are constantly monitored and, if standards fall below acceptable levels, they are deleted from the database.

For further information, visit improveline.com

Lighting the way

Bosch has extended its range of cordless power tools with a range of GLI torches. Available in 9.6v, 12v, 14.4v, 18v and 24v, they are powered by a krypton bulb and include a focus function for adjustment purposes.

As the torch heads can rotate through 90 degrees, they are particularly useful for awkward areas. Although the torches don't come with a battery, they are compatible with respective Bosch batteries from the company's range of cordless drill/drivers and combi machines, all of which are supplied with a second battery as standard. Prices start from £15.

For local stockist information, contact the Bosch Advice Line on 01895 838743.



Free for all

A second battery and 50-piece accessory set is being given away free by Bosch, with all purchases from its PSR cordless drill/driver range. Products include the PSR 9.6 VE-2, the PSR 12 VE-2 and the PSR 14.4 VE-2. Each set, which comes in its own sturdy case, contains titanium nitride coated high speed steel masonry and wood drill bits, along with flatwood and screwdriver bits, nut driver, countersink and magnet holder, along with a precision craft knife. Packs are available from all good DIY outlets.

For further information, contact Bosch on 01895 834466.

No improvement

According to recent research conducted by Gallup for Allied Dunbar, only 5% of people opening savings accounts in the past two years had done so for a new home. And despite the popularity of TV shows such as Changing Rooms and Home Front, only 1% of new accounts were for home improvements.

Crafty move

Trend has increased the selection of cutters in its Craft Range. The new additions are 90 degree mini trimmers, designed for trimming intricate shapes and details. The cutters are ideal for toy making and dolls house construction. Both have a 6.35mm diameter with different cut lengths of 12.7mm and 25.4mm. They can be used on any hand held router, and are suitable for use on laminates, veneers, fibre and particle board as well as natural timbers. Prices start from £10.50 plus VAT

For more information and stockist details phone 0800 487 363.



Just the job

To help woodwork enthusiasts to work more efficiently, a rolling tool organiser from US company Bucket Boss is now available, which holds everything DIYers need and more. A fabric covered crate on wheels, it features side handles for taking it over obstacles, and a retractable handle for easy storage.



There are 52 pockets for hand tools, custom pockets for drill bits, fasteners and tape measures, and a huge interior for bulky items such as extension cords and circular saws.

The Bucket Boss costs around £39.99, and is available from all good DIY stores. For further details phone 01707 852247.

Competition results

Thank you to all the readers who entered our recent Trend Airshield competition. The eight winners are:

J Swanson, Middlesex
Mr R C Cordery, Hampshire
Mr M Dodd, Nottinghamshire
Kevin McCarthy, Norfolk

Mr L Dodd, Nottinghamshire
Brain Watt, Aberdeenshire
M Putter, Anglesey
Paul Newns, Cheshire

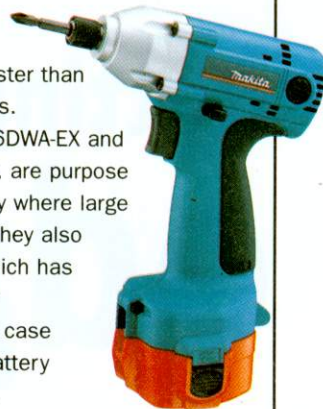
Congratulations to you all, your prizes are on their way to you!

Fast and forceful

Two compact, powerful, lightweight cordless impact screwdrivers have recently been introduced, which manufacturers Makita claim perform 20 per cent faster than conventional rotary action drill/drivers.

Both models, the 12v 2.0 Ah 6916DWA-EX and the 9.6v 2.0Ah version 6990DWA-EX, are purpose designed to offer maximum efficiency where large numbers of screws need to be set. They also feature Makita's Marathon motor, which has been built to survive over 500 hours' demanding use, and come in a carry case complete with a charging unit, two battery packs and a Phillips bit as standard.

For further information and details of local stockists, contact customer services on 01908 211678.



Cutter above the rest

Blade changes are a thing of the past with a sharp new craft knife - the Marvel Cartridge Cutter - from engineertools.co.uk. Ideal for jobs where blade sharpness is essential, it contains eight snap off blades, each with 8 cutting edges, giving a total of 64



cutting edges before the handle has to

be refilled. The blade can be locked into position for heavy duty work or closed for safety, and gives a firm grip when scoring hardboard, shaping wood or cutting carpet tiles or plastic.

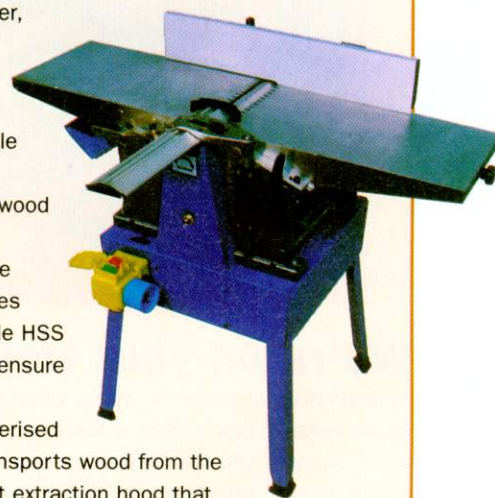
The knife comes in red, blue, green and yellow and costs £17.60, incl.VAT.

For further information, phone 01526 354522.

Price is right

A new planer thicknesser, the W580, with a thicknessing capability of 260mm x 150mm, is now available for less than £500. Manufactured by Charnwood in Charnwood blue, it represents a major price breakthrough, and comes fitted with resharpenable HSS knives as standard, to ensure a superb finish. Other features include a rubberised outfeed roller which transports wood from the cutting area, and a dust extraction hood that ensures woodchips are efficiently removed.

The W580 is available from all Charnwood dealers. For details of local stockists phone 0116 251 1550.



All decked out

Among the latest range of products from Liberon, is Decking oil, a new high quality UV and water-resistant oil designed to protect as well as restore. It can be used on both treated and untreated timber and provides a hard wearing, impervious finish which helps to protect wood from damaging weather and harmful ultraviolet rays.



It comes in clear or amber, in either 2.5 or 5 litre cans, with prices starting at £14.99.

Two other oils have also been introduced: Natural floor oil, which highlights grain, and locks in the colour of new wood floors to prevent them darkening with age, and Maintenance oil, a neutral that's complementary to Natural floor oil, increasing durability and helping to maintain the good looks of a natural wood floor.

Natural floor oil comes in 1 and 5 litre cans and costs £9.99 and £36.99 respectively. Maintenance oil is available in 1 litre cans and costs £6.99.

For further information, phone Liberon on 01797 367555 or the technical helpline on 01797 361136.



Adding shine

Give furniture an extra shine with a new spray wax from Liberon. It feeds and cares for all types of wood, and is particularly suited to traditional finishings such as waxing and polishing lacquered, varnished and French polished furniture. Used regularly, it keeps wood protected and helps to prevent water marking and other surface damage. A 400ml aerosol spray costs £4.99 and is available from independent DIY and hardware centres.

For further information, phone Liberon on 01797 367555 or the technical helpline on 01797 361136.



Pain free

Save wear and tear on your knees with Air-Gel knee pads from Bucket Boss which have been ergonomically designed to provide comfort and absorb shocks. The gel cradles the knee and protects it from impact and jars, with the non-skid rubber cap on the front of the pad providing a grip on slippery surfaces. As an added bonus, the pads, which cost £39.99, also do away with perspiration.

For details of local stockists, contact Bucket Boss on 01707 852247.



DIARY

July

14 Finishing with Jim Kitson

John Boddy's, Boroughbridge
Tel: 01423 322370

14-15 Tool Shop Auctions

Peterborough
Tel: 01449 722992

16 ASK turning demos

ASK Tools, Birstall, West Yorks
Tel: 01924 440610

16-17 Roofing methods teach-in

Weald & Downland Open Air Museum, Chichester, West Sussex
Tel: 01243 811464

18-20 Basic woodwork course

West Dean College, West Sussex
Tel: 01243 811301

20-21 Upholstery course

West Dean College, West Sussex
Tel: 01243 811301

21 Square hollow form turning

Peter Child Woodturning Supplies, Halstead, Essex
Tel: 01787 237291

21 Carving with Peter Berry

John Boddy's, Boroughbridge
Tel: 01423 322370

21 Isaac Lord demos

Isaac Lord, High Wycombe, Bucks
Tel: 01494 462121

21-22 Turning demos

Trapp Art & Crafts Centre, Llandewi
Tel: 01792 864364

22-27 Upholstery course

West Dean College, West Sussex
Tel: 01243 811301

23-27 Ashem Crafts chairmaking course with Peter Hindle

Droitwich Spa, Worcestershire
Tel: 01905 640070

24-26 New Forest & Hants Show

New Park, Brockenhurst, Hants
Tel: 02380 292365

28 Tormek demo with Brimarc

John Boddy's, Boroughbridge
Tel: 01423 322370

28 International tool auction

Tool Shop Auctions, Needham Market, Suffolk
Tel: 01449 722992

August

4 Turning with Marsden Howitt

John Boddy's, Boroughbridge
Tel: 01423 322370

4 Turning with Derek Phillips

Peter Child Woodturning Supplies, Halstead, Essex
Tel: 01787 237291

4-5 Craft Supplies demos

The Mill, Millers Dale, Buxton
Tel: 01298 871636

8 Trent Valley Woodturners demos

Kegworth Community Centre, Leics
Tel: 0116 2677233

11 Upholstery with Marsden Howitt

John Boddy's, Boroughbridge
Tel: 01423 322370

11-17 Letter carving course

West Dean College, West Sussex
Tel: 01243 811301

18 Turning with Tony Witham

Peter Child Woodturning Supplies, Halstead, Essex
Tel: 01787 237291

18 Draper tools workshop

John Boddy's, Boroughbridge
Tel: 01423 322370

22-29 Boat building course

Weald & Downland Open Air Museum, Chichester, West Sussex
Tel: 01243 811464

24-27 Chilterns Craft Show

Stoner Park, Henley-on-Thames
Tel: 01425 272711

31-Sept 2 Craft Supplies show

The Mill, Millers Dale, Buxton
Tel: 01298 871636

31-Sept 2 Furniture design course

West Dean College, West Sussex
Tel: 01243 811301

September

1 Turning with Derek Phillips

Peter Child Woodturning Supplies, Halstead, Essex
Tel: 01787 237291

1-6 Chair making course

Mike Abbott Green Wood Courses, Bishops Frome, Worcester
Tel: 01531 640005

7-9 Weald of Kent Craft Show

Penshurst Place, Near Tonbridge
Tel: 01425 272711

7-9 Fine furniture making course

West Dean College, West Sussex
Tel: 01243 811301

8 Routing with Ted Heathcote-Walker

John Boddy's, Boroughbridge
Tel: 01423 322370

8-13 Advanced Chair making course

Mike Abbott Green Wood Courses, Bishops Frome, Worcester
Tel: 01531 640005

12 Trent Valley Woodturners demos

Kegworth Community Centre, Leics
Tel: 0116 2677233

14-16 Sandown Exhibition

Sandown Park racecourse
Tel: 01926 614101

15 Turning with Tony Witham

Peter Child Woodturning Supplies, Halstead, Essex
Tel: 01787 237291

15 Veneering with Robert Cooksey

John Boddy's, Boroughbridge
Tel: 01423 322370

15-17 Intro to green woodwork

Mike Abbott Green Wood Courses, Bishops Frome, Worcester
Tel: 01531 640005

18-23 Green woodwork course

Mike Abbott Green Wood Courses, Bishops Frome, Worcester
Tel: 01531 640005

21 Isaac Lord demos

Isaac Lord, High Wycombe, Bucks
Tel: 01494 462121

22 Faithfull Tools demo

John Boddy's, Boroughbridge
Tel: 01423 322370

23-28 Furniture care course

West Dean College, West Sussex
Tel: 01243 811301

29 Isaac Lord demos

Isaac Lord, High Wycombe, Bucks
Tel: 01494 462121

28-29 Wood Works Show

Worthing Leisure Centre, Worthing
Tel: 01903 695900

29-30 Turning demos

Trapp Art & Crafts Centre, Llandewi
Tel: 01792 864364

October

6 Turning with Derek Phillips

Peter Child Woodturning Supplies, Halstead, Essex
Tel: 01787 237291

6 Craft Supplies demos

The Mill, Millers Dale, Buxton
Tel: 01298 871636

20 Turning with Tony Witham

Peter Child Woodturning Supplies, Halstead, Essex
Tel: 01787 237291

20-21 South Bucks Show

Bucks College, High Wycombe
Tel: 01494 462121

25-28 ATME Tools 2001

The Bath & West Showground, Shepton Mallet, Somerset
Tel: 0800 1699450

27 Isaac Lord demos

Isaac Lord, High Wycombe, Bucks
Tel: 01494 462121

November

3 Turning with Derek Phillips

Peter Child Woodturning Supplies, Halstead, Essex
Tel: 01787 237291

Send diary entries to us at least five weeks prior to publication. As details can sometimes change, readers should always contact the venue concerned in advance. Please mention Routing when calling.

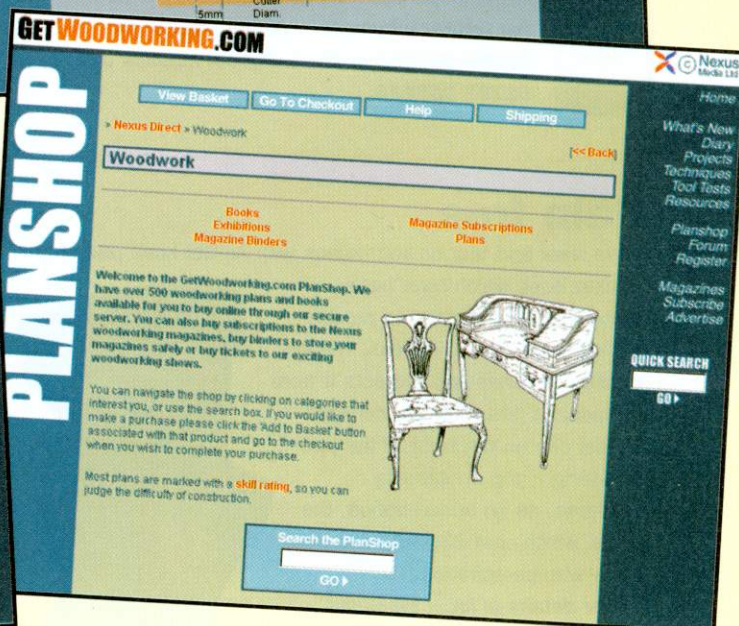
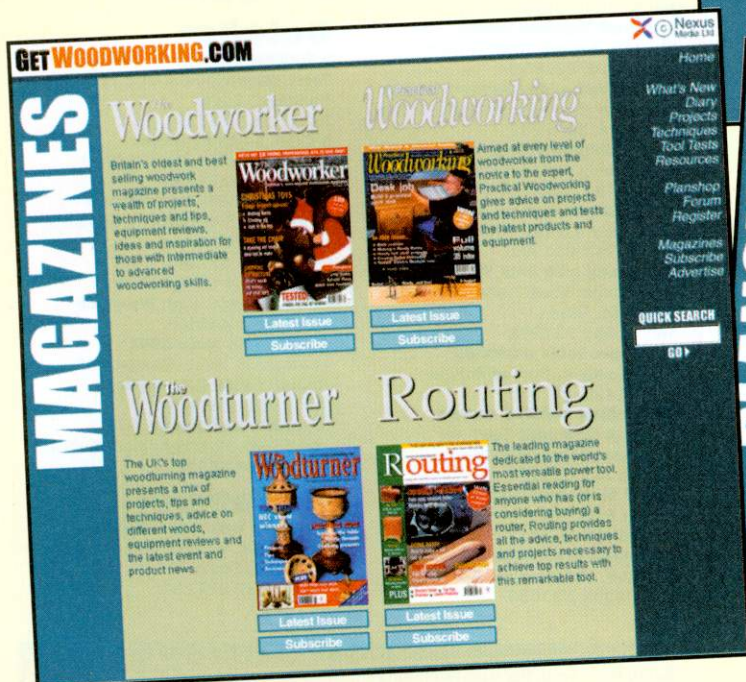
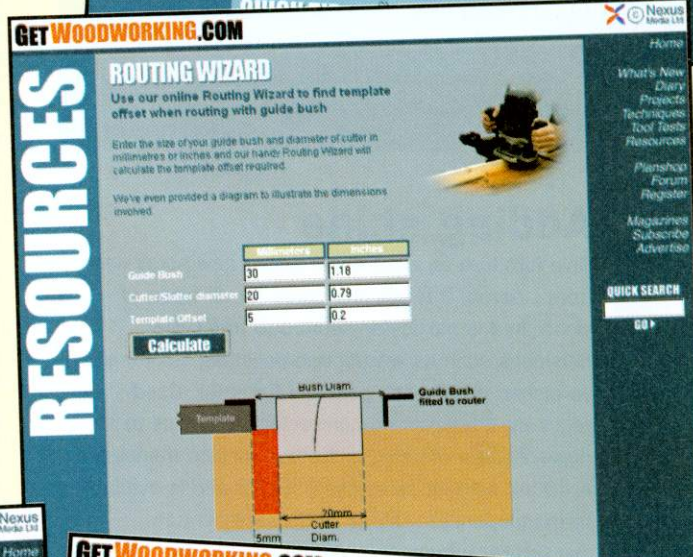
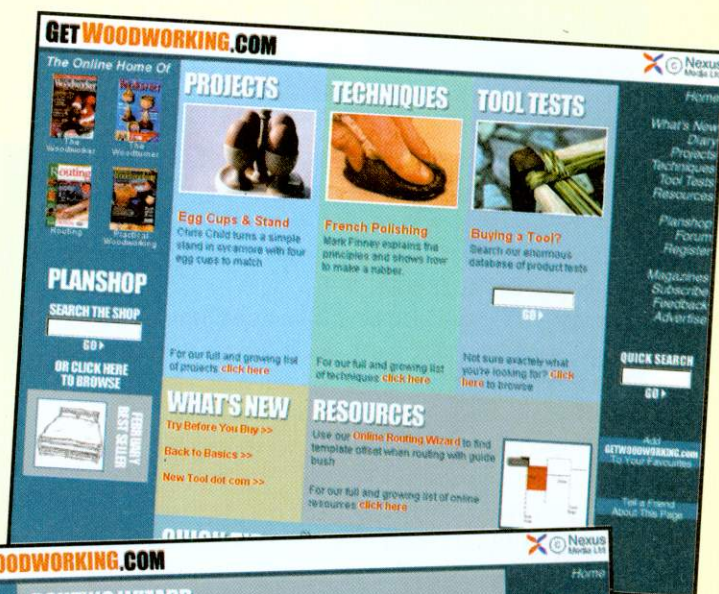
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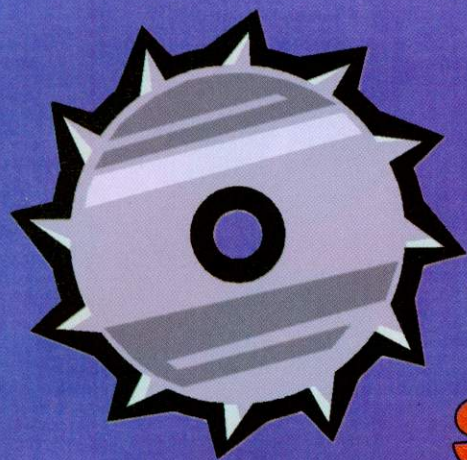
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DeWalt	Hamlet
Bosch	Rapesco
Makita	Stanley

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Sharp tips

WINNER

Second fence

I recently made a second fence for my router, useful when cutting mortises or similar, to stop the router wandering. As can be seen, it is cheaply made from offcuts and simply constructed.

For the top piece which grips the bars I used a piece of softwood, about 40 x 25mm, it is important that it is square edged, but apart from that any piece will do. The position of the two holes for the bars, however, are important, these must be drilled accurately, sized correctly, parallel to each other, and to the bottom face of the piece.

I used the manufacturer's fence to mark the position of the holes, and drilled them using a drill in a stand. Next, from the bottom face, drill the holes for the bolts to tighten so as to grip the bars. These should be countersunk to allow the bolt heads to fit flush. I used four 6mm bolts with washers and wingnuts, but I'm sure three would be enough. Next rip through the centre of the two bar holes, fit the bolts in the bottom piece, and fix it firmly to the base, an offcut of 18mm MDF in my case. Slip the matching piece over the bolts, put on the washers and wingnuts, and you're ready to go.

In use, adjust the router position using the manufacturer's fence, and when satisfied, bring the second fence up on the other side of the workpiece and tighten. This will stop any wandering of the router while the cut is being made.

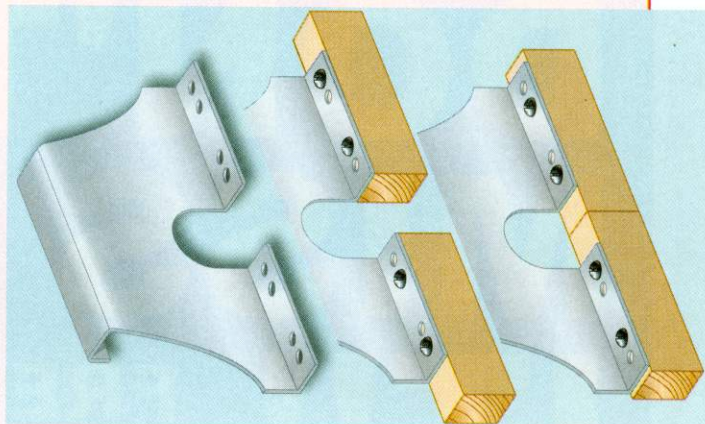
Possible improvements could be to a) Line the bar holes to give a better grip; b) Fix an edging strip on the face in contact with the work, for smoother action. In practise I find that it works well as it is, so I've left well alone.

Frank Brolly, Powys



Win a Bosch power tool!

Each issue, Bosch and Routing have teamed up to give you the chance of winning some great new power tools. Simply send in your top routing tip and the sender of the most useful, inventive or entertaining tip we publish will win a Bosch power tool of their choice to the value of £120 inc. VAT. The Bosch DIY range includes well designed premium quality power tools you can trust such as mains drills, cordless drills, jigsaws, sanders, planers and routers.



Better Pads

My light router came with a fence, usable as it was, but drilled for pads to be screwed on if I wished. I decided to make hardwood pads that could be used in two positions, by making second sets of screw holes. The opening was 1 1/2in (38mm) wide, but I did not expect to have to clear a cutter larger than 3/4in (19mm) diameter. For many cuts it would be better for the pads to close the gap completely, so there needed to be 3/8in (9mm) movement on each pad to bring them together, and I drilled new screw holes 3/8in (9mm) from the existing holes.

I drilled the wood pads to take the points of round head screws so there was 3/4in (9mm) gap when they were driven through the outer fence holes and the pads would meet when they were moved to the inner holes

Joe Brownlow, Kettering

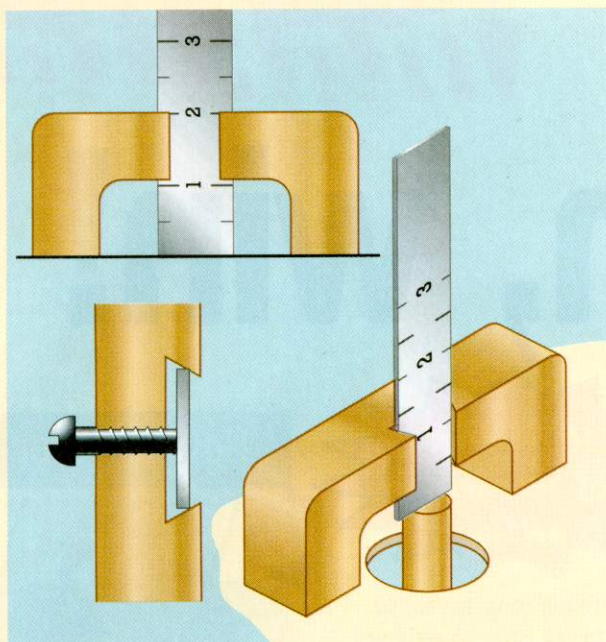


Table Cutter Height

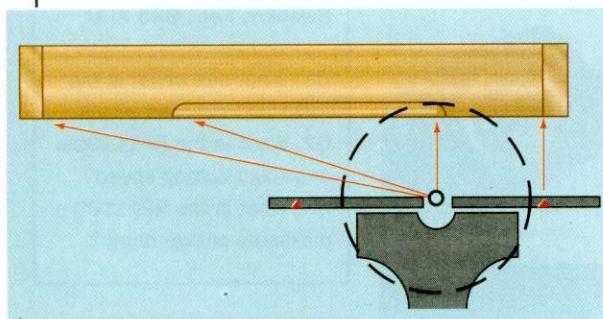
The amount of projection of a cutter through a router table is not always easy to measure. I made this height gauge, using a steel rule that can be removed for other purposes. The body is a block of wood thick enough to stand unaided, cut out to a little more than I expect to measure. The total depth is enough to put the top level with an exact graduation (say 2in or 50mm) when the rule end is level with the body feet.

The rule goes through a groove with tapered sides and is held by a screw pushing it against the tapers. Drive a screw right through, then withdraw it and file the end flat to give a good bearing against the rule when it is inserted again.

The height of a cutter can be read by noting how far the rule is withdrawn past the reference calibration.

Charles Sampson, Coventry

Level limits



Most of us extend the pads of our router fences with wood to give better control at start and finish of edge cuts. The extensions can also help when a chamfer or other cut has to be limited, as with the ends of matching chamfers around a table leg. If you mark on the extended wood pad where the end of the job comes when the cut limit is reached, that will be more easily seen than trying to look through the base of the router for a pencil mark on the job.

William Rouse, Northampton

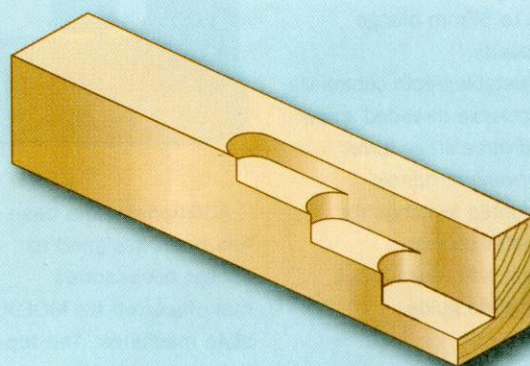
Reference book

Having been ill for some time has given me time to catch up on reading more about routing and woodworking in general (especially my back issues of *Routing*) finding tips and jigs I have not implemented or made, reading and thinking, 'so that's the book it was in! I'm sure I looked in this magazine when I needed it!' And so on...

The answer to this is so simple I wish I thought of it years ago. Purchase a 'Black 'N' Red' single cash A4 book (hard back or similar) would be ideal, giving five columns and space to write a brief description of the subject matter including which line, illustration numbers and include a cross-reference from/to book or magazine titles, date and page numbers.

I would suggest starting with three pages (giving six sides) with one set of three pages for each letter, 'A' - 'Z'. As an example, you wish to save and later find a jig for cutting tenons with a router. Having listed all you have from books and magazines for this jig under 'J', tenon joints under 'T', cutters/bits under 'C' or 'B', cross-referencing can be as complex or simple as you wish to make it, but next time you want to make say a jig to make a router plane, find out, would cutter/bit 'A' do a better job than 'B', you can look in your own reference book (provided you included the information in the first place) look up which books or magazines the subject is in and find all the pages first time and pick the best advice from your library of books and magazines. Include any tool catalogues you have, tools of interest, its endless and for any hobby. Make full use of the information you have seen when reading, the motto is: list it, don't lose it, or forget it, USE IT!

Ian Avery, Surrey



Plunge Gauge

It is unwise and sometimes impossible to attempt to cut a deep groove or mortise in one pass of a straight cutter. It is better to use two or three passes at different depths. Rather than estimate the depths, particularly when there is much of this work to be done, it is worthwhile making a gauge at the intended depths, using the same router cutter, so you can set the projection exactly the same each time.

Make cuts so the settings finish open to one side, as shown. Make the gauge long enough to more than span the base of your router.

John Wheeler, Stafford

Win, win, win!

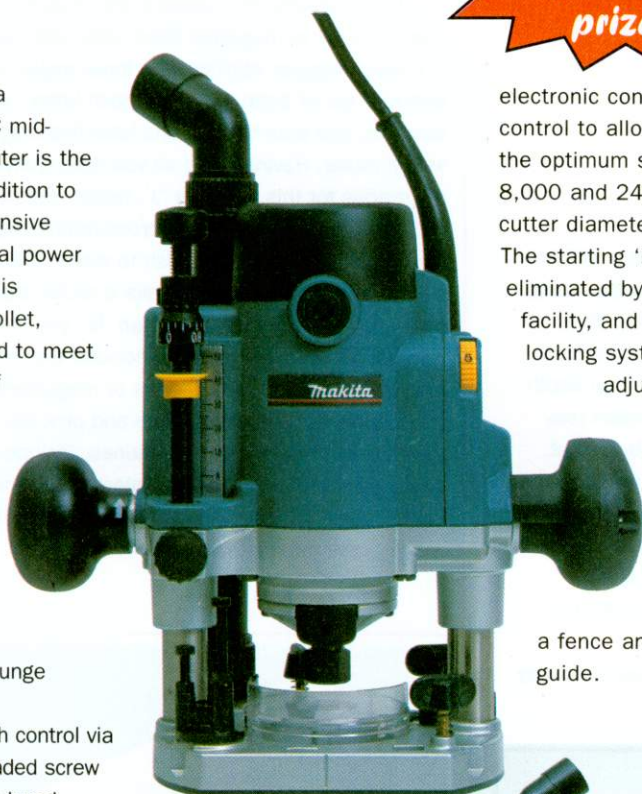
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The Makita RP1110C mid-range router is the latest addition to their extensive range of professional power tools. The machine is supplied with $\frac{1}{2}$ in collet, specifically designed to meet the requirements of professional carpenters and joiners working on site. The RP1110C offers the following winning features:-

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Routing/Makita Competition, Nexus Media, Nexus House, Azalea Drive, Swanley, Kent BR8 8HU

- Q1. What size collet is the RP1110C supplied with?
Q2. What is the RP1110C's maximum cutting speed?
Q3. What is the RP1110C's maximum plunge depth?

Rules

Only one entry per reader will be entered into the draw. Closing date for entries is 13th September 2001. The first five correct entries pulled out of the hat on the above date will be judged to be the winners of the Routing/Makita Competition and will each receive one Makita RP1110C router. The winners will be notified by post after the draw and the names will be published in a future issue of the magazine. There is no cash alternative to the prizes.

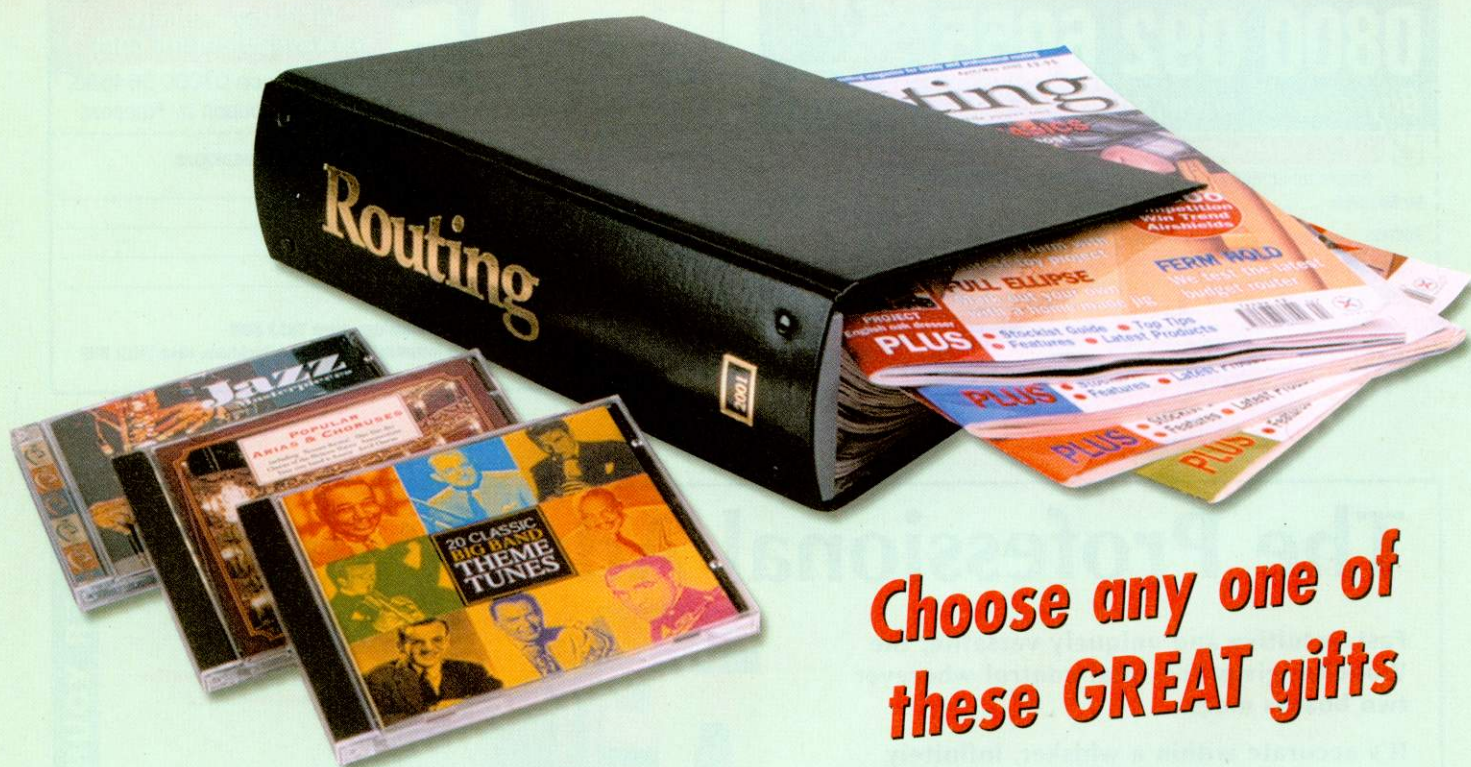
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For further information on the Makita range of power tools contact their customer service department on 01908 211678.



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Round the clock

Most round wall clocks are turned on the lathe with relative ease, but in the absence of such a machine an equally attractive result can be obtained using a router. Peter Dunsmore shows how

This wooden rim is designed to fit a 12in bezel dial fitted with a quartz movement and the following method describes how I made this clock using a 1.2m length of 150 x 25mm English oak. As can be seen from the drawing and the pictures the bezel sits neatly into a recess cut into the clock

rim and consequently a degree of accuracy is required when cutting the rebate. For this reason it is advisable, as it is when making any clock, to obtain the various parts needed beforehand in case there is any deviation in the finished diameter of the rim. The cutter used to profile the rim is a Titman CEM2 fitted to a router held in the router table

but there is a range of other suitable shapes available.

Making a start

The length of oak is cut into four pieces using only 45° cuts (this saves unnecessary

wastage of wood) and the four pieces are joined

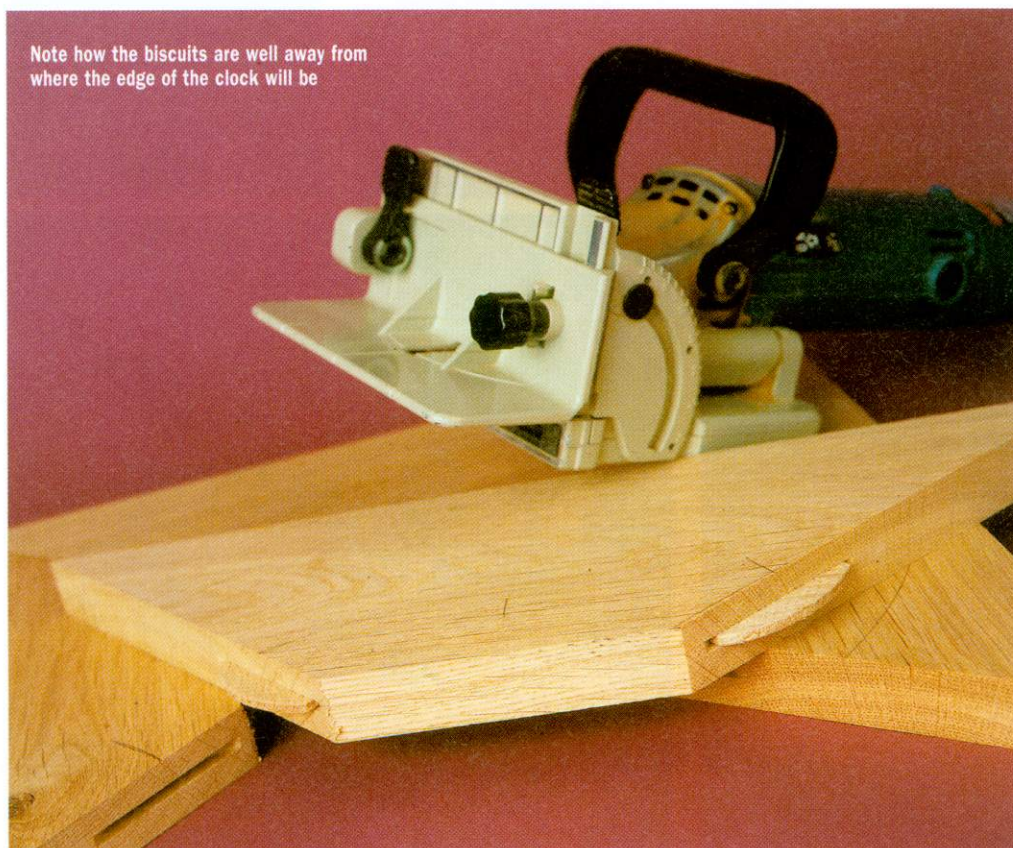
together to form a 900mm square. An MDF template is made for one quadrant and pinned on each piece in turn and a bearing-guided trimmer is used to trim the mating surfaces true before gluing them together with PVA.

A biscuit jointer is used to reinforce the joint but an equally satisfactory way would be to use the router to cut a rebate for a plywood tongue to be glued in place. Either the biscuit or the tongue should be stopped short of the edge of the clock otherwise it will ultimately be revealed when the edge is profiled.

This square now needs to be cut into a circle with a diameter of 384mm. The hole in the middle prevents the use of a router fitted with a trammel bar to cut the circle and so the following method is used. A piece of MDF is clamped onto a suitable work surface such as on old bit of Stirling Board and the circle cut using the router fitted with the trammel bar set at the correct radius. Progressively deeper cuts will



Note how the biscuits are well away from where the edge of the clock will be



Project

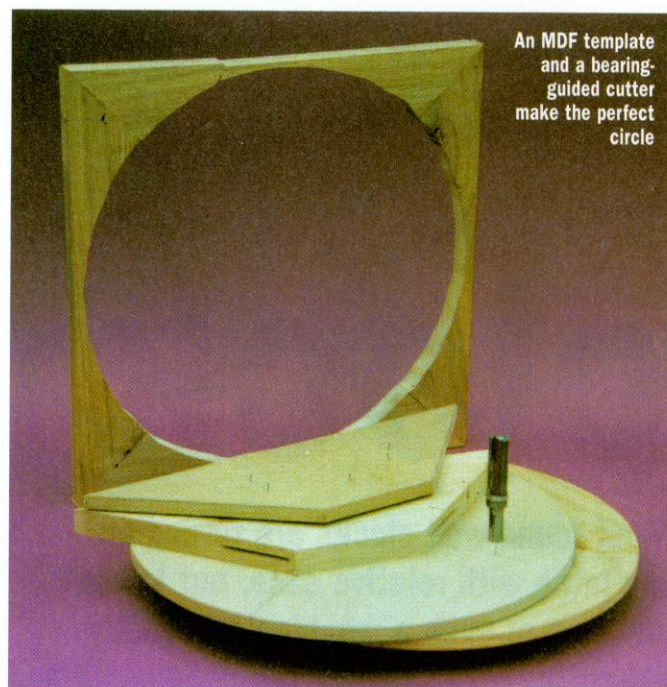
result in a perfect circle. To prevent the circle breaking away as the cutter breaks through the MDF and into the Stirling Board I find it useful to pin the circle down before I start cutting. Dust extraction of some kind is recommended for this as a lot of dust is produced when cutting MDF. The template produced is pinned centrally onto the oak square and a fretsaw used to cut the excess oak away to within a couple of millimetres of the edge of the template.

The bearing-guided cutter is

again used to trim the edge of the oak. It is important that there are no flaws on the edge of the oak as imperfections here will ultimately show up as ripple on the finished moulded surface.

Moulding the edge

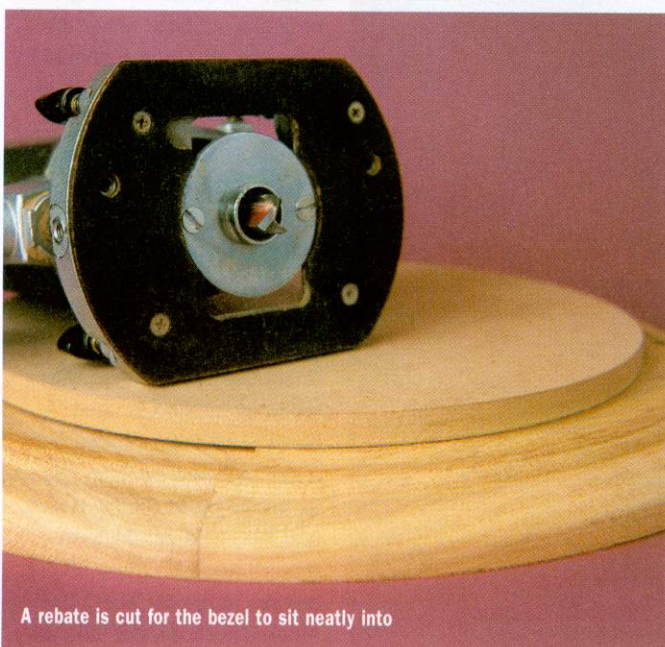
The MDF template is removed and the bearing-guided cutter (CEM2) used to mould the edge of the clock. The edge of the oak is used as the guide for the bearing. When profiling with the router a better finish is obtained if several shallower



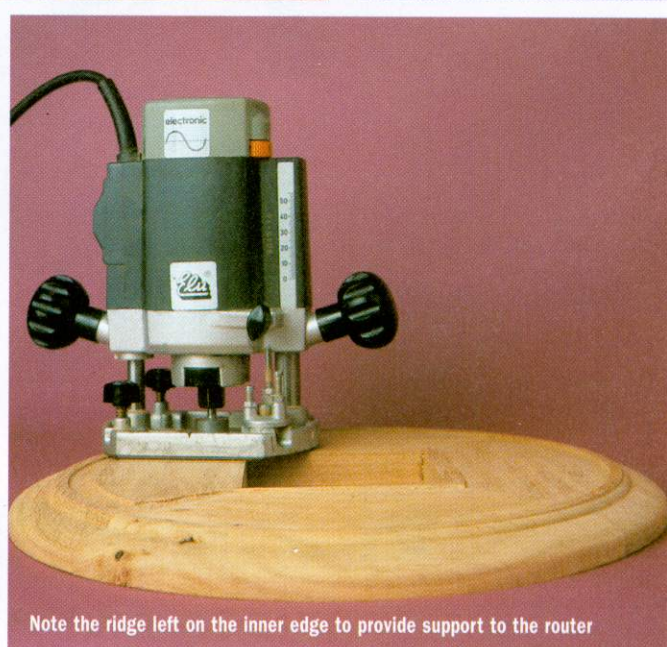
An MDF template and a bearing-guided cutter make the perfect circle



A bearing guided cutter provides the attractive edge moulding



A rebate is cut for the bezel to sit neatly into



Note the ridge left on the inner edge to provide support to the router

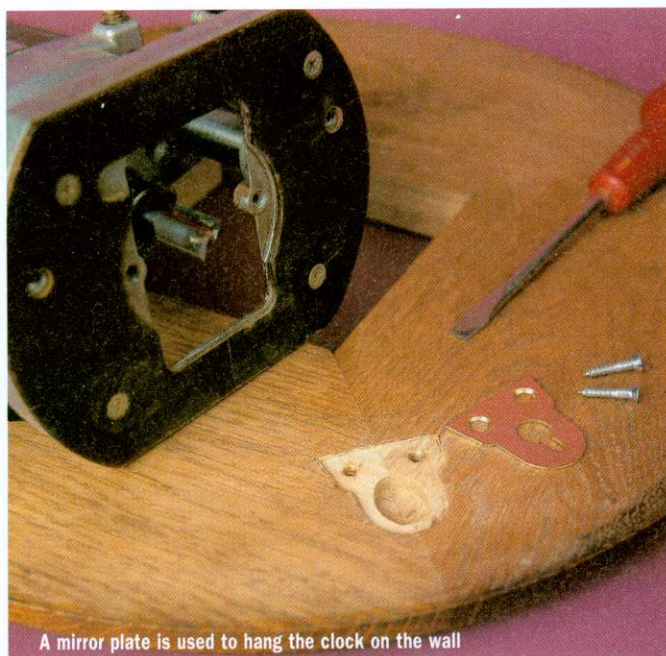
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Timecraft

Unit 19
Sefton Lane Industrial
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Maghull
Liverpool
L31 8BX
Tel: 0151 526 2516

Titman Tip Tools

Valley Road
Clacton-on-Sea
Essex
CO15 4AB
Tel: 01255 220123



A mirror plate is used to hang the clock on the wall

cuts are taken instead of one deep cut. Ensure that the oak is held flat down onto the router table at all times throughout the cutting stage.

Rebating for the bezel

The bezel and the clock face sits into a shallow recess cut into the clock. To cut a true circle on the clock surface I pinned another MDF circle of a smaller diameter onto the oak and used a router fitted with a guide bush to carefully cut a rebate about 7mm in from the edge of the small beading made by the moulding cutter. This space makes room for the bezel hinge to sit neatly into the rim. Care is taken to keep the router pressed against the template at all times throughout the cut and not to let it slip outwards and ruin the work done so far. The router is carefully lifted up and out of the way when the waste has

been removed. With the template removed and the guide bush off the router the depth of cut is set so that the remainder of the oak can be removed freehand. A small ridge is left on the inner edge of the clock to provide the necessary support for the router and this is ultimately removed with a sharp chisel.

Finishing the clock

A chisel is used to cut a recess for the hinge to sit in and a slot cut with a drill and fretsaw for the brass strap on the bezel to clip in to keep the bezel closed. On the rear of the clock a rebate is cut freehand with the router fitted with a small diameter bit to provide a recess for the mirror hanging plate used to hang the clock on the wall. The clock face can be held in place with either double-sided tape or pinned in place with small pins.



Care is taken to fit the hinge neatly in place

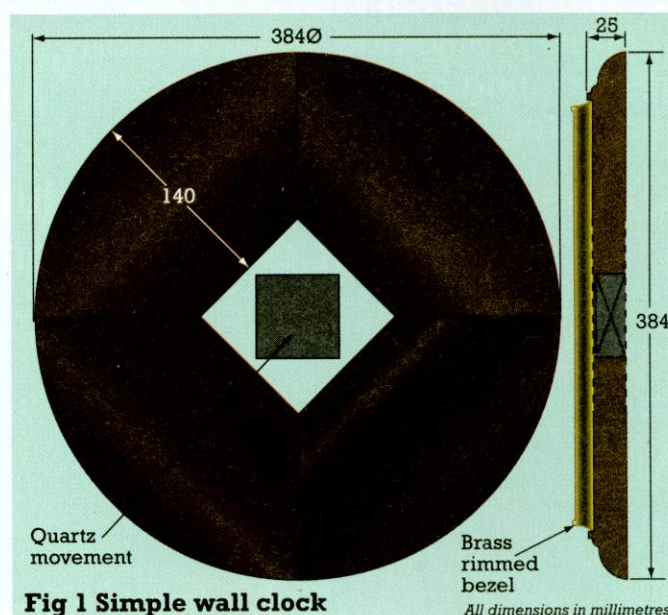


Fig 1 Simple wall clock

All dimensions in millimetres

Finishing

Finishing the clock rim is a matter of personal choice, but whatever is used it is easier to do before finally fitting the bezel and face in place. I darkened the oak to a warm brown colour with Van Dyke crystals diluted in warm water before sealing the grain with three coats of button polish. When this had dried it was rubbed down with 600 grade emery paper and a wax finish applied and buffed to soft sheen.



The finished round oak clock

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Ron Fox offers expert advice on keeping your expensive router cutters clean and sharp

The newcomer to routing soon finds that the investment in cutters exceeds that in the original router. It pays us therefore to keep our cutters in top condition. Fortunately, cutter maintenance is a simple matter: we keep our cutters clean and we keep them sharp. We also store them safely in a way that does not allow them to corrode or rattle against each other in a box.

In the following procedures we shall be dealing with tungsten carbide tipped (TCT) cutters but the methods are equally applicable to high-speed steel (HSS) cutters.

Cutter cleaning

A clean cutter is halfway to a sharp cutter. The burnt deposits that accumulate on the edge of a cutter, and the film of resin from the material we are using, heat up when we use the cutter again. This build-up of heat on the edge of the cutter blade does as much to dull the cutting edge as the abrasive nature of the material we are working. Keeping our cutters scrupulously clean helps keep them sharp and results in cleaner cuts.

We begin by removing the bearings from any bearing guided cutters that we are cleaning. This is partly to allow us to get at all parts of the cutter to clean it thoroughly and partly so that we will not wash away the bearing lubricant with any solvent we use.

Cutter care



General view of cutter maintenance gear

The next step is to brush off all loose dust with an old toothbrush. A more abrasive brush such as a suede shoe brush or even a spark plug brush could be used but is not necessary, since we are going to remove any deposits still remaining with a solvent.

Pic 2 shows the loose dust being brushed off a cutter with a toothbrush. After brushing, there are likely to be traces of

resin or burnt deposits remaining on the cutter. Resin deposits can be removed with a dab of solvent on a rag. The best solvent by far that I have come across for this purpose is the one made for removing excess contact adhesive when laminating with Formica etc. This is one of the substances no longer found on the open shelves in shops; you have to ask for it. I buy mine from the

local ironmonger.

Pic 3 shows a cutter being wiped clean with the solvent on a rag. Any solvent you have handy is worth trying. Trend package a specific resin remover and other solvents with names like 'Sticky Stuff Remover', and 'Wood Resin Cleaner' are available, but I have not come across anything to beat the contact adhesive remover.



Cutter cleaning - brushing loose dust off with toothbrush

With the majority of your cutters the tooth brush followed by the solvent will be all that is needed to clean your cutter, but if you have been working with chipboard or really tough hardwood you may have heavier burnt deposits that will not yield to the solvent. For such deposits, a household abrasive cleaner (and a bit of elbow grease) will remove anything left after using the solvent. The cleaner I use is called 'Astonish' and comes from the same local ironmonger as the contact adhesive remover, but there are various other brands on the market any of which are worth a try.

Pic 4 shows the burnt deposits on a cutter being removed with the abrasive cleaner used with a damp rag. With the aid of the above materials you should be able to make all your cutters look like new; any cutter that does not respond to this treatment is

likely to be beyond aid and should be scrapped.

If you are just having a cleaning session and are not proceeding with the next stage of honing, the final step is to wipe your cutters dry and spray them with silicone, WD40 or any similar spray.

This has two benefits:

- a) It prevents corrosion arising from the solvent or the damp rag.
- b) It lubricates the cutter and allows it to run a little cooler and cleaner the next time you use it. This helps prevent the build-up of further deposits.

Cutter honing

More often than not, after cleaning you will refresh the edges of your cutters with a thin diamond hone. These have transformed the maintenance of TCT cutters; before their advent it was simply not possible.

Pic 5 shows a selection of diamond hones suitable for



Cutter cleaning - wiping off resin deposits with solvent on rag



Cutter cleaning - cleaning burnt deposits with abrasive household cleaner

router cutters. Two different makes are shown; the American made DMT and a Swiss make. DMT hones are widely distributed, and are

available from most Trend stockists, among others. The Swiss-made ones are available from The Woodcut Trading Company.

The two makes adopt the same colour-coding system; Green is extra fine; Red is fine; Blue is coarse and Black is extra coarse. Grade for grade the Swiss hones are slightly coarser than the American, so the recommended grade for router cutters is Red for the DMT hones and Green for the Swiss hones. The hones come in a range of sizes from a small slip stone to a full bench stone. For router cutters we need a thin one and my favourite is the 4in folding handle type. The next most useful is the 3in plain kind,

available from JB Marketing (see panel).

It is important to recognise that we are honing our cutters, not grinding them. This means that we apply the hone 'little and often', rather than wait until the cutter is blunt and then try to restore it.

To use the hone, wet the surface of the diamond plate with water, bed the flat face of the cutting blade on the surface of the stone and rub it back and forth. Do not let the plate dry out, keep it well wetted. Only light pressure is needed - let the diamond do the work.



Honing a 5/8in straight cutter. Woodcut extra fine (Green) hone

which can be taped to a convenient bench top.

There are two recent additions to the hone market:

1. The double-sided hone. This provides two grades of grit, a coarser one for starting on a cutter that has been let get blunter than you intended and a finer one for normal every day honing. The appropriate models are the red/blue from DMT and the green/red from Woodcut.

2. The 'credit card' hone. This is a thin plate about the size of a credit card with a fine diamond grit on one side and a coarse one on the other. It is

Repeat for the other edges (the most common sort of cutter will have two edges) giving each edge the same number of strokes to preserve the balance of the cutter. With HSS cutters a very slight burr might be formed, which can be removed with a very gentle stroke on the back of the cutting edge.

The crucial question is how many strokes do we need to give the edge? The facile answer is 'As many as it needs'. You will be the judge of that; you will have other cutters - perhaps some still unused - to give you an original edge for reference.



Selection of diamond hones suitable for router cutters

Pic 6 shows a 5/8in straight cutter being honed on an extra fine (Green) Swiss hone. Cutters with broad faces such as this are the easiest to start with but, in general, straight cutters are quite simple until you come down to a 1/4in cutter on 1/4in shank. At this point it is impossible to lay the cutting edge with the shank parallel to the hone. It is also very difficult to ensure that the very narrow flat face is bedded on the diamond plate. Some workers choose to have more than one 1/4in cutter and keep one for their best cabinet work letting it 'grow old gracefully'

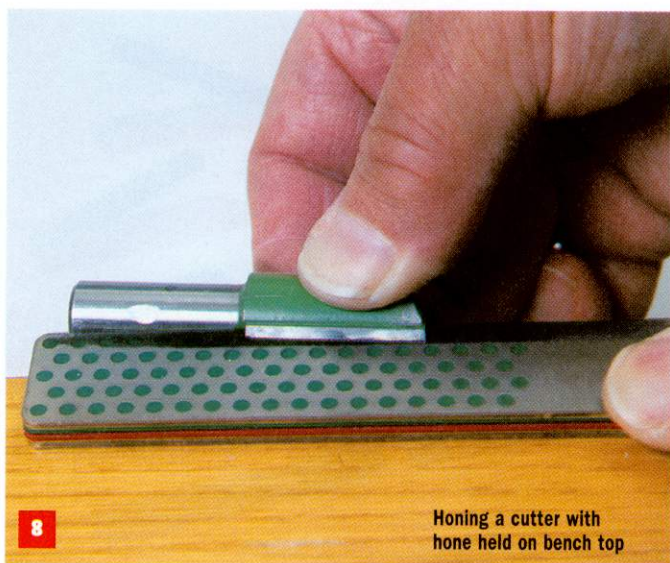
then sending it for regrinding, while keeping another for everyday work and honing it as best they can.

When the cutter becomes narrower than the shank e.g. a 4mm cutter on a 1/4in shank or a 1/4in cutter on a 1/2in shank, honing becomes impractical so we content ourselves with keeping the cutter clean and sprayed, and send it for periodic resharping if it is economical to do so.

Pic 7 shows a 1/4in cutter being honed. Note how little metal is actually on the diamond plate. Once you have

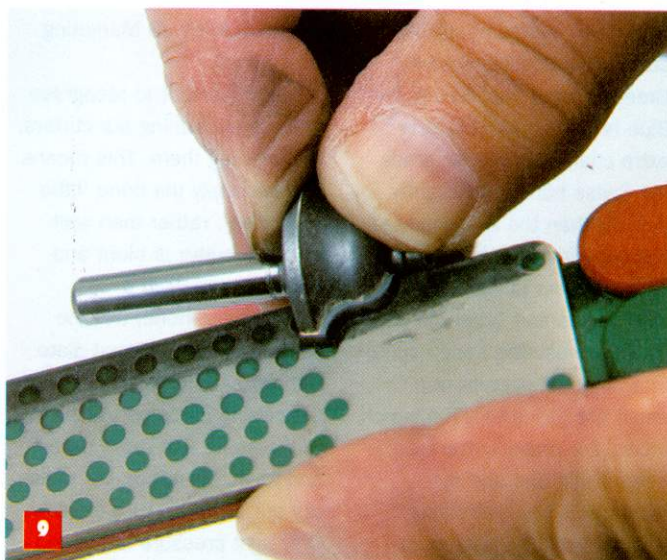


Honing 1/4in straight cutter. DMT Double Diafold hone. The small diameter of the cutter makes this difficult



8

Honing a cutter with hone held on bench top



9

Honing a bearing guided cutter. Note that bearing is removed and note angle of cutter shank to hone

A cutter being sprayed with lubricant after cleaning and honing



10

gained a little experience with the hone held in the hand (which enables you to hold it at various

angles to make sure that the cutter face is properly bedded on the diamond plate) you will

probably find it more efficient to hold or tape the hone to the edge of the bench top and work in the manner shown in pic 8.

There will always be a few cutters that cannot be honed - the most notable being the spiral. In cases such as these we content ourselves with keeping the cutter clean and sprayed. One class of cutter that sometimes perplexes the beginner, however, is the bearing guided cutter, which some assume cannot be honed. Once the bearing is removed, however, you will find that these cutters are among the easiest to hone.

The important thing is to completely disregard the angle that the cutter shank makes with

the diamond plate. Different cutters have the blades set at different angles; any attempt to hold the shank level with the edge of the hone, as I have seen some people do, will result in the cutter edge being rounded over.

Pic 9 shows a small bearing guided cutter being honed. Even the largest such cutters can be honed once the bearing has been removed. Having cleaned and honed our cutter we now spray it and replace the bearing if there is one. Pic 10 shows this operation.

A heretical method of honing

The method of honing described above, with only the flats of the blade taken to the

Cutter storage

Having taken the trouble to put our cutters in top condition we do not want to spoil things and damage them by poor storage. If your cutters form a boxed set there is no problem. Keep them in their box and spray the shanks as well as the heads so that they do not corrode from contact with the box.

Individual cutters come in various forms of packaging. Some are in plastic envelopes, others in plastic boxes, still others in more elaborate cases with a plastic bobbin in the base to hold the shank. If the original packaging is thought to be below par, the usual solution is a block of wood to take the shanks. You can give the block a more finished look by moulding the edges. Use softwood or a very mild hard wood for your cutter block - you do not want to find dark blue shanks from the tannin in a block of green oak. If you make a block, drill holes big enough to give clearance to the shank. For $\frac{1}{4}$ in shank cutters I drill $\frac{17}{64}$ in holes, giving myself $\frac{1}{64}$ in clearance. For $\frac{1}{2}$ in shanks I use a 13mm twist drill. This reduces the possibility of corrosion from contact with the wood and might save your fingers from a very nasty cut trying to pull a tight cutter out of the block. Make sure you spray the shanks before returning them to the wood block.

Pic 13 shows a selection of cutters stored in boxes, original plastic cases and home-made blocks. Finally, Trend publish a very good little 'Routing Guide' which includes a useful chapter on cutter and collet care.

Further information

DMT/Starkie and Starkie	0116 285 4772
JB Marketing	0116 281 0539
Saw Doctor Association	01844 354747
The Woodcut Trading Company	0800 378027
Trend	0800 487363
WoodRat	0845 458 2033

Routing readers can take advantage of a special offer on Eze-Lap diamond hones. See page 65 of this issue to find out more.

The back of a blade being honed on the credit card hone



them for six months and then decide that they are in need of honing. Experience will teach you. If you let them go too far you will not be able to retrieve them with the hone, and will be faced with a reshaping job. Eventually you might want to have a cutter professionally reshaped anyway. When the time comes, your nearest Saw Doctor will do it for you. Titman recommend sending your

cutters to a member of the Saw Doctor Association to ensure a proper standard of service. You will find them in your Yellow Pages.

There is still one more job left to us. We have to clean the hone and make sure it is dry before we put it away. The easiest way to clean the surface of the diamond plate is to rub it with a plastic eraser. Pic 12 shows this operation.



hone is the orthodox way. An alternative method is advocated by Martin Godfrey of WoodRat fame. His method is to hone the flat part of the outside edge of the blade - exactly what the orthodox view tells you not to do. The method only works for cutters that have a straight flat on the outside edge. It cannot be used for shaping cutters or for many apparently simple straight cutters where the back of the blade is radiussed. For those cutters where the method is applicable, however, it produces exceedingly sharp blades. I recommend that you try it. The credit card hone is good for this.

Pic 11 shows a straight cutter being honed in this way. That is all there is to cutter maintenance - it is very simple but it must be done. We do not hone our cutters every five minutes; equally we do not use

Cutters stored in box, block of wood and original plastic cases and envelopes



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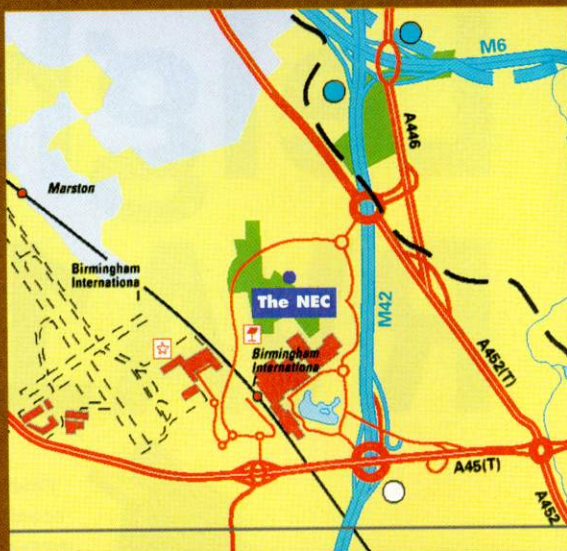
There are two feature competitions at the show for woodturners and router users. With high value prizes, in the one case from sponsors Craft Supplies and Elektra Beckum/Metabo and in the other from DeWalt, there is a high incentive to draw inspired work from woodworking enthusiasts and make a fascinating display.

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* Details are correct at time of going to press, but feature items may be subject to change or cancellation.

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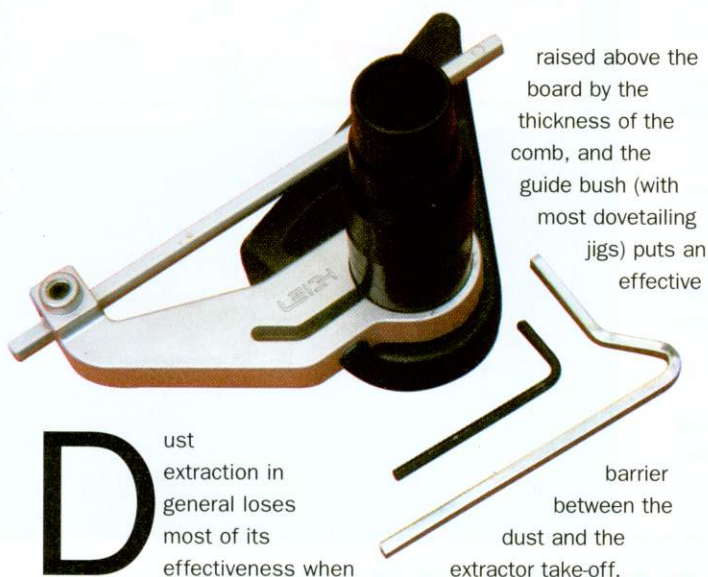
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Leigh RVA1



raised above the board by the thickness of the comb, and the guide bush (with most dovetailing jigs) puts an effective

barrier between the dust and the extractor take-off.

Dust extraction in general loses most of its effectiveness when you are edge moulding or rebating with the router. This is because working on the edge of a board causes a drop in the vacuum when half the router base is hanging over it. In addition, the rotation of the cutter throws the shavings away from the edge. The problem is worse when dovetailing since the router is

What is needed is a device that gathers the dust from where it is thrown out under the dovetailing comb. Leigh now provide such a device in the form of their router vacuum attachment RVA1, which collects the dust in a fish-tail spout which attaches to the router by means of the fence rods.

Fish-tail spout

The main picture shows the components of the RVA1. A plastic fish-tail spout is carried on an alloy bracket which, in turn, attaches to the router by means of a rod which is held in one of the fence-rod positions. The spout incorporates a vertical dust take-off fitting to which the extractor is connected.

The cranked bar in the picture is for use with routers such as the Festool 1010 EBQ and certain Porter Cable and Bosch models where the fence rods run at right-angles to most other models.

The bracket is set so that the vertical take-off point is opposite the router collet and the plastic fish-tail is rotated anti-clockwise until its right-hand edge, which is fitted with a roller, bears against the workpiece. Its position can be further fine tuned after a few test cuts.

The extractor hose must be supported overhead, both for efficiency and to prevent its weight pushing the router down off the edge of the workpiece.

The pictures show the attachment in use with the Leigh Jig and a straightforward chamfering operation.

The verdict...

The attachment takes a bit of getting used to, with an initial feeling that the router is going to tip off the front of the jig, but having used it for a few cuts it is very revealing to try the same cuts without it. In other words, you do not realise how much dust it is collecting until you try the same cuts without it.

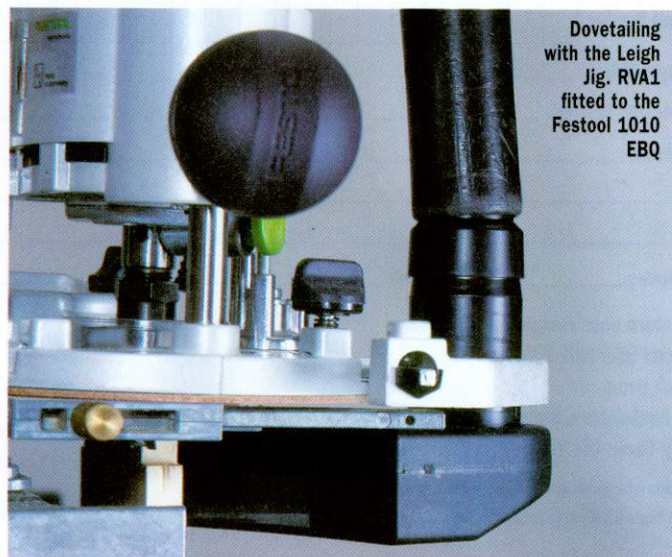
Further information

List price

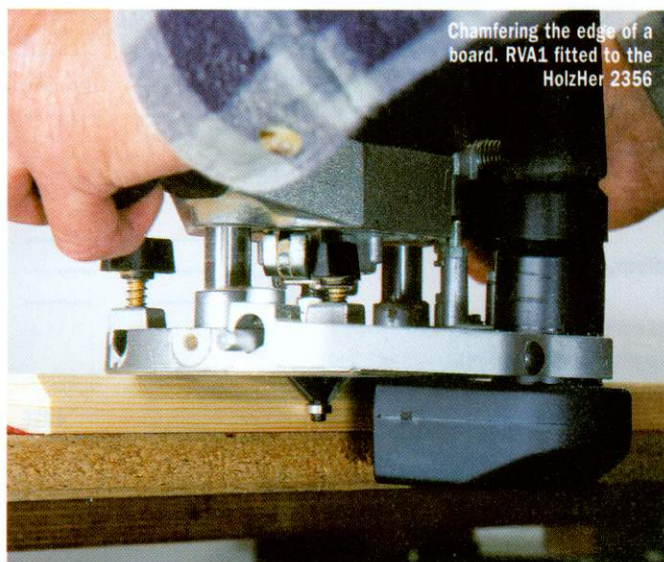
The RVA1 costs £40.30 including VAT and fits virtually all routers

Brimarc Associates

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Dovetailing with the Leigh Jig. RVA1 fitted to the Festool 1010 EBQ



Chamfering the edge of a board. RVA1 fitted to the HolzHer 2356

Teddy bear bed



Malcolm Stamp describes how to make your own version of his unique child's bed

This could really have been one of those nightmare jobs when a friend asks you to build his daughter a pine bed. Now in my book, it is a really silly idea to make anything in pine, as you are immediately competing with every cheap and nasty pine store in the area. You cannot win on price making a one-off, unless you are prepared to live on fresh air.

The solution to this problem is to make something totally unique, different or strange. A

brief chat with mum about Vicky and I had an idea: teddy bears! I played around with a few different designs before deciding on this one. It should not take any great leap of imagination to extrapolate from this basic idea to create other designs; a train, car or frog

perhaps. It was also stipulated that the bed should be of robust construction. I had already made one bed for mum and dad as their shop bought bed had collapsed under dad's heavy frame. I had built that bed extremely well as I knew that they had my telephone

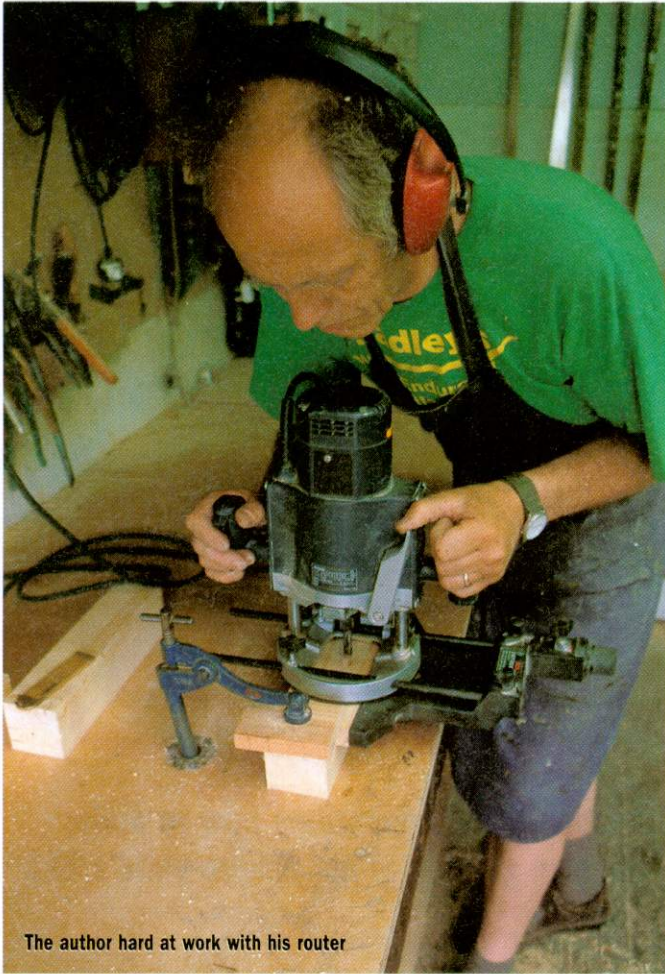
number and would not hesitate to use it in the dead of night if the bed broke!

I have left out the dimensions on this project as there are a plethora of different size mattresses to choose from and the bed will need to be constructed to suit.

Time taken

It took me 12 hours in construction time and about the same again in planning and liaising with the customer. Cost to the customer £450 which I think is pretty reasonable.





The solution to this problem is to make something totally unique, different or strange

Fig 2 Headboard detail

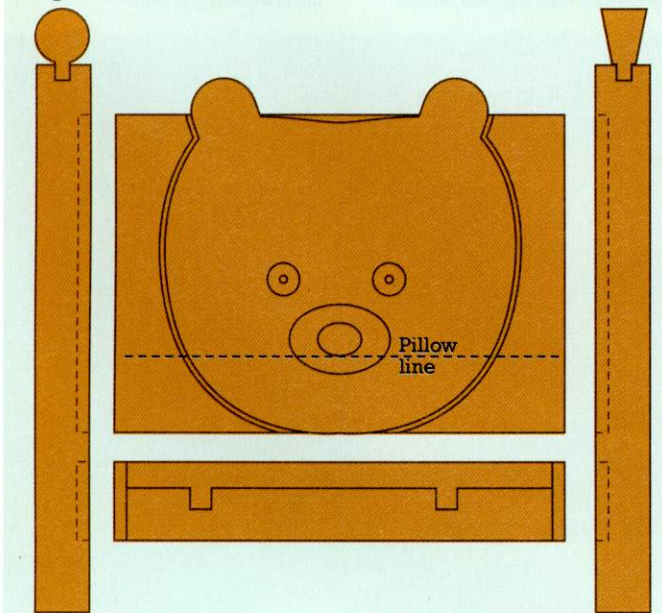
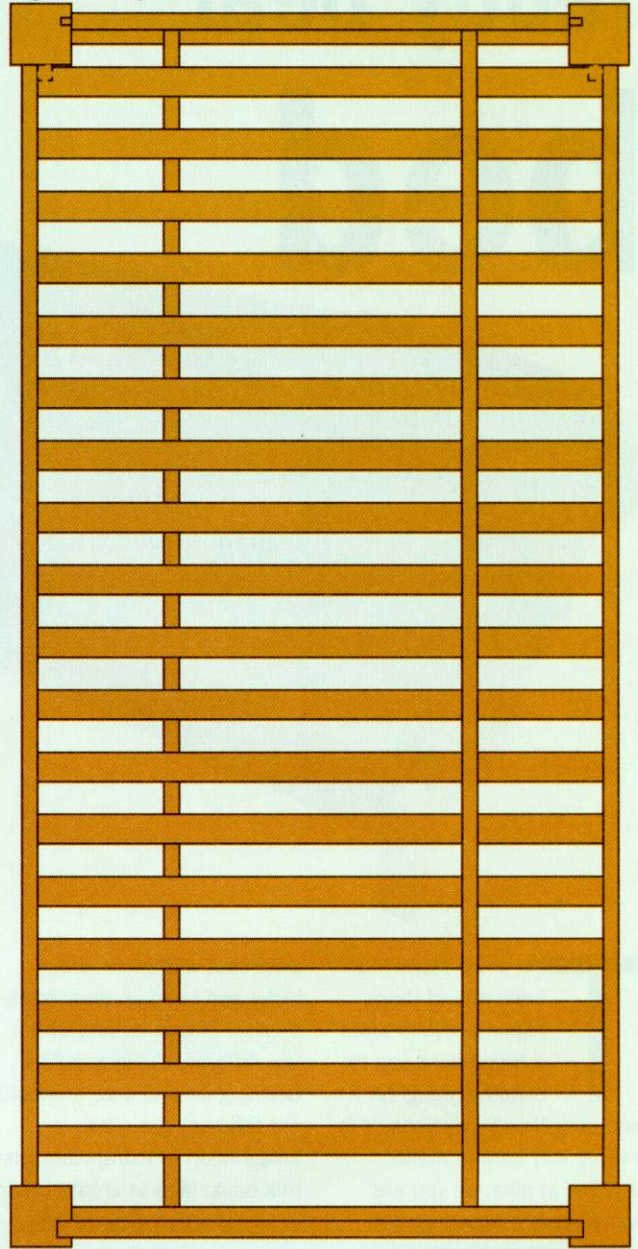


Fig 1 Teddy bear bed



Tools required

A router is an absolute must but it need not be the top of the range. If you can only afford one router buy a small one. You can do anything with this in small bites whereas a big router can be just too unwieldy for some jobs. You will need a selection of router bits:

- Ovolo cutter
- 3/4in round nosed cutter
- 1/4in round nosed cutter
- 45 degree chamfer cutter
- 3/4in straight bit
- 1/2in straight bit

Making the template

This I chose to make out of MDF as it is extremely stable, has no grain and is cheap. I spent quite some time drawing the bear, trying to create a very obvious bear like image. On my first attempt my wife asked me

why was I drawing a pig instead of a bear? Once I had worked out how to create this image I transferred it to my piece of board. An important point to take into account is the height that the pillow will come on the headboard, as the nose of the

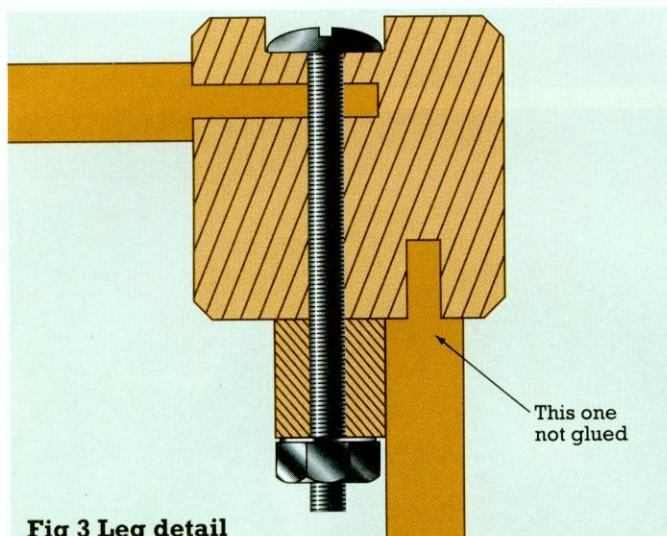
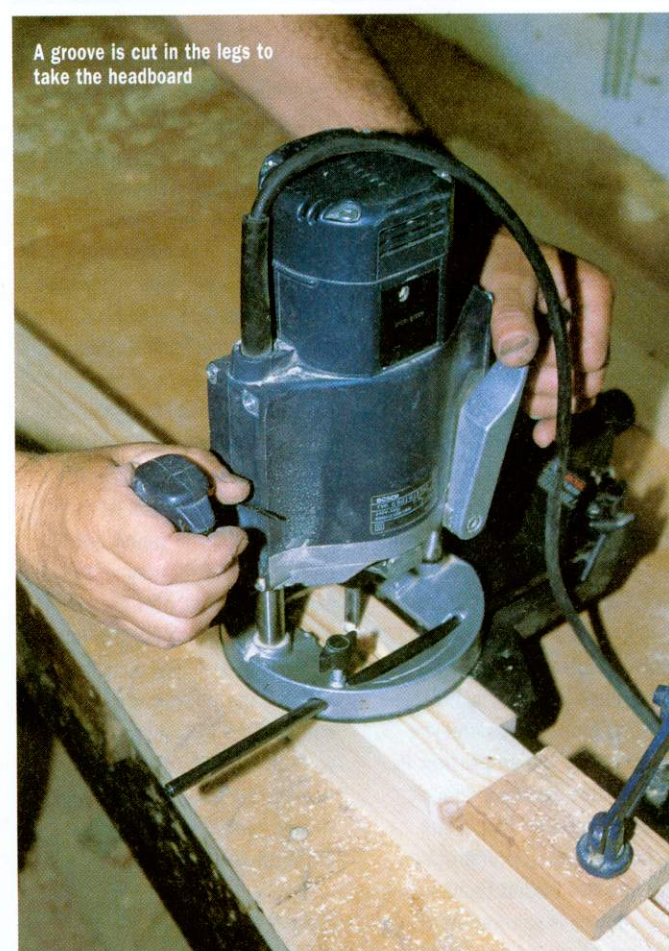
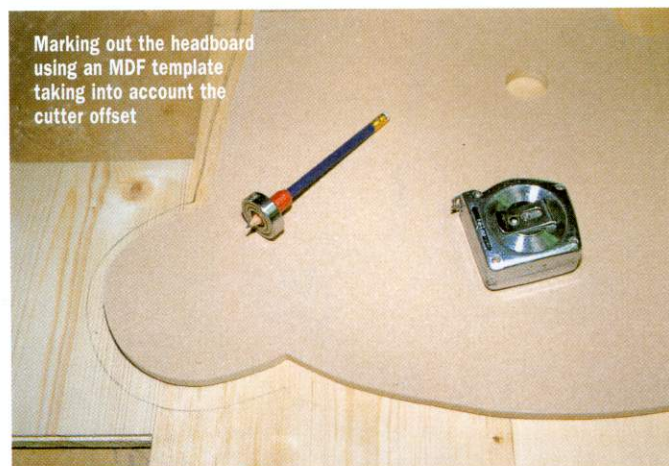
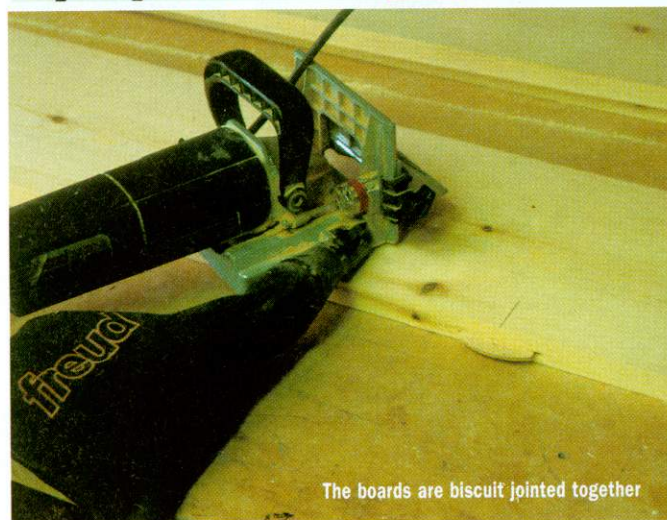
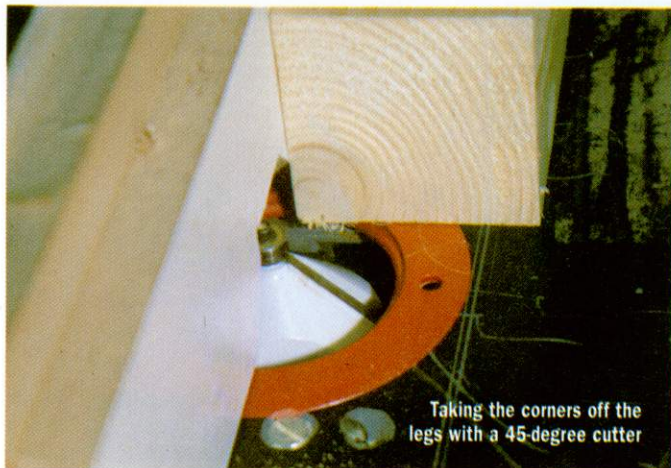


Fig 3 Leg detail





Taking the corners off the legs with a 45-degree cutter

bear must be above this point. Since this was a one-off project I built a template that would do for all the cuts that I would have to make, cutting down the template as I proceeded. If I were doing it for a production run I would have made a number of templates all with locating pins to fit in the correct place. I cut out the shape on the board with a fret saw but a jigsaw would have worked with the aid of slightly more sandpaper.

Construction

Basically the bed is made up of a headboard and footboard which are the main structural elements. These are connected by the two, quite light, non-load bearing, side pieces and the slatted base assembly that is built on the two main load bearing timbers. This is an extremely strong construction and has the added beauty that it is easy to disassemble for that inevitable house move.

The end frames of the bed are made of two legs connected by a board, which is mortised into the legs. This is easily done using a half-inch router to chop out the trenches for the mortise. The legs at the head of the bed are extended up to hold the headboard. This is located in a groove that is routed out at the full width ($\frac{3}{4}$ in in this case) and the full height of the headboard. It isn't a good idea to have sharp edges on the legs so the corners are taken off using a 45-degree bit in the router table. The headboard is made up of a number of planks jointed together with biscuits. In truth, it would be quite strong enough to just use a rubbed joint as the boards will be constrained in the grooves that you have cut in the legs. However, if you have a biscuit joiner, use it, for the added strength and control it gives.

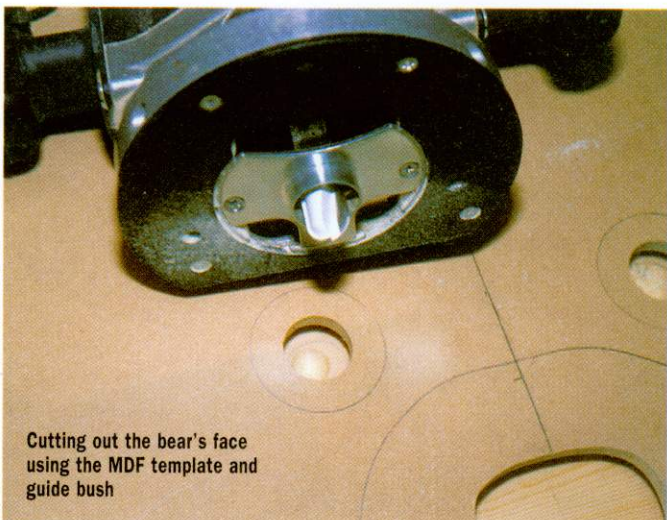
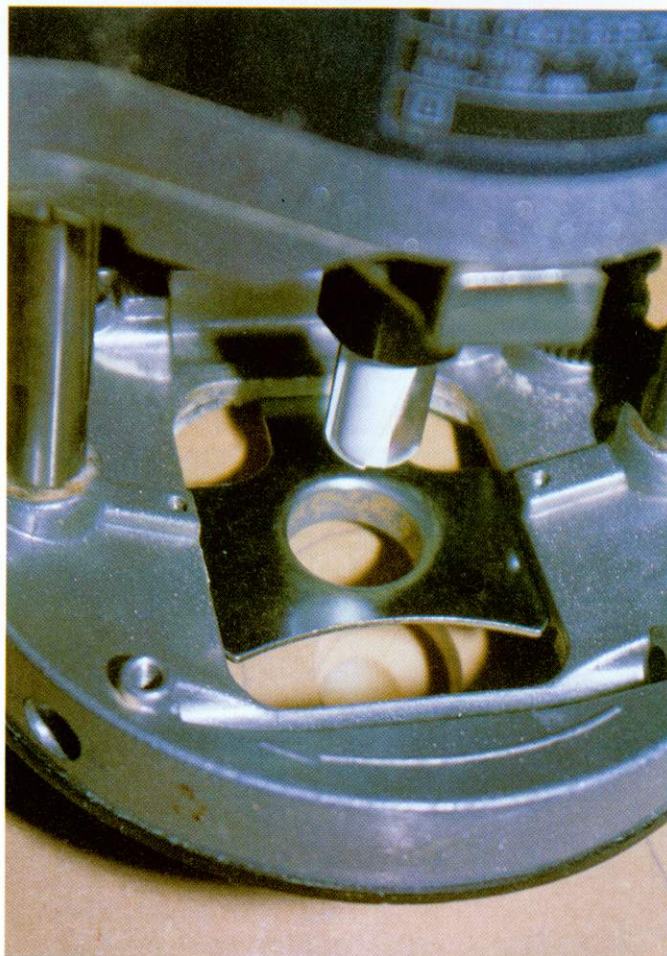
Bear detail

Now comes the really fun bit

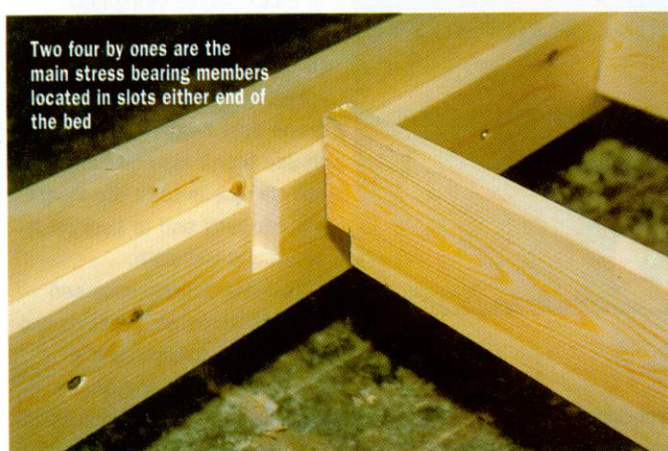
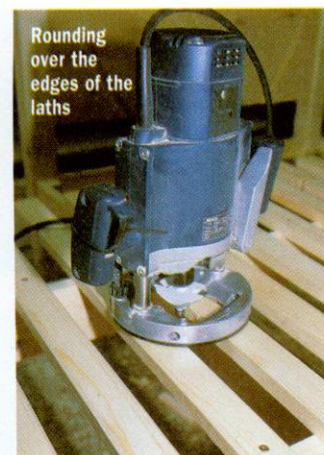
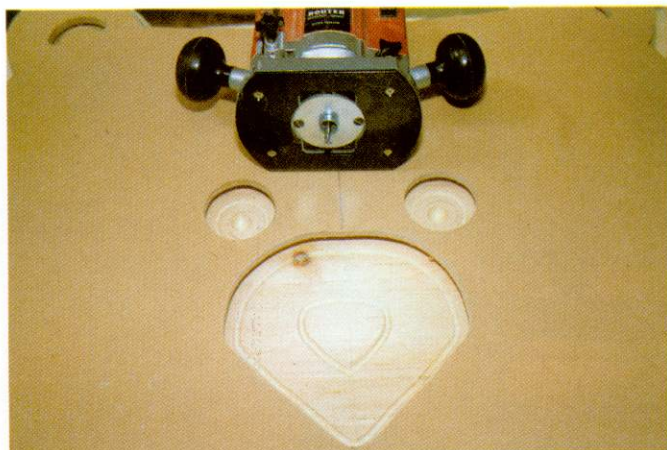


Finishing

I drilled two 1in diameter holes in the top of the bedpost and created two finials to go on the top. The cynical amongst the readers might think that they are not matching because I cannot turn two matching spheres? Look at them, they are fun and if you want to turn two matching spheres get on with it, me, I cannot be doing with convention. I finished off the bed with three coats of pre-cat lacquer, sanded down between each coat.



Cutting out the bear's face using the MDF template and guide bush



with the router. I chose to use an ovolo cutter with top bearing to create the outline of the teddy. First set the template on

the board and check that the offset of the cutter has been calculated correctly. Using a pencil suitably padded out with

tape to fit inside the router bearing, mark around the outside of the shape. This is one of those jobs that you could easily make a hash of, so make a test cut first on scrap wood before going for the real thing. Follow the template round in one steady sweep starting off at the top, and all should go well. The teddy's eyes are done in two stages. First the centre is cut using a $\frac{3}{4}$ in round nose cutter in the router, which is located in a hole in the template by its guide bush. Next cut the outer line for the nose. For this use a $\frac{1}{4}$ in round nose cutter in a router with a guide bush. Now it is time to chop down the template for the next stage.

With the template removed cut out the eye sockets and the nose so that you can continue with the next cuts. The template is remounted and the outer ring cut for the eye and nose using the $\frac{1}{4}$ in round

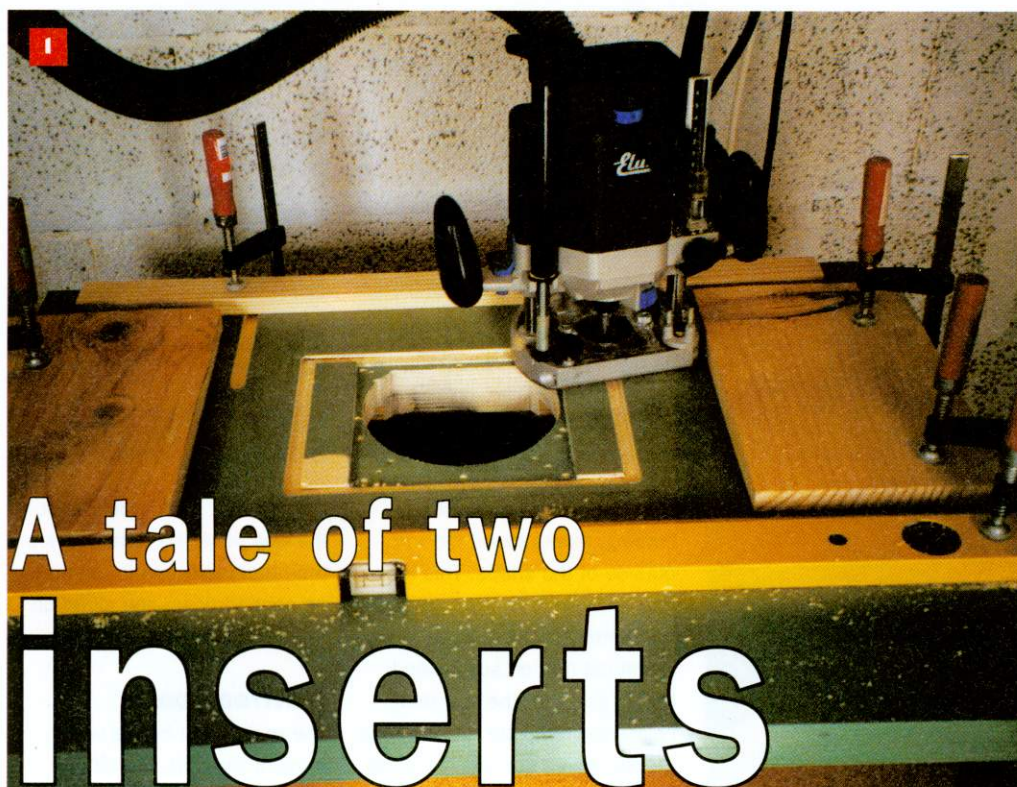
over bit and guide bush. That is the end of all the detail work on the headboard and it can now be sanded down and glued up in the leg assembly.

Mattress base

The rest of the bed is very straight forward, the sides have blocks of wood screwed and glued to each end to facilitate the bolting together of the components. The mattress base is built up of two by ones laid every two inches. These are screwed onto two, four by ones, which are the main stress bearing members, rather than the two outside edges. They will fit into two locating slots on either end of the bed. I like to chamfer all the edges of the laths and find it easiest to do this with the base made up. The bearing-guided chamfer bit is put in the router and it is then a case of running around all the edges of the laths.



The finished teddy bear bed



A tale of two inserts

Don Phillips offers advice on choosing and fitting insert plates in a table

black plastic it is nearly half an inch thick, reducing to a quarter of an inch thickness for the last half an inch around the perimeter. It came with an installation kit which consisted of black plastic elongated washers that were supposed to fit between the insert and the table. I examined these for some time before I decided not to use them. Instead I chose to cut my recess to fit the insert plate exactly and to support it all around the edge.

The instructions enclosed also recommended making two 'T' squares to provide the frame for the cutting of the seat for the insert. Because of the difficulty in making two large and accurate 'T' squares and the lack of suitable

When I bought my first router, a Black and Decker 780, I soon discovered that to get the very best out of it I needed a router table. I looked at the cost of the commercial models and decided that I would make my own, as this would enable me to make it larger than most commercial tables and at a height that suites my build. I used doubled 18mm plywood for the table and piece of clear polycarbonate as the insert

plate and it worked quite well. This set up lasted me for a year or so until I managed to get my hands on a second hand Elu 177E. This proved to be too heavy for the polycarbonate and caused it to deform and lift at the edges. A router table that is not flat is not a lot of use so it was obviously time to get a professional insert, but which one. In my search for the perfect insert I tried two.

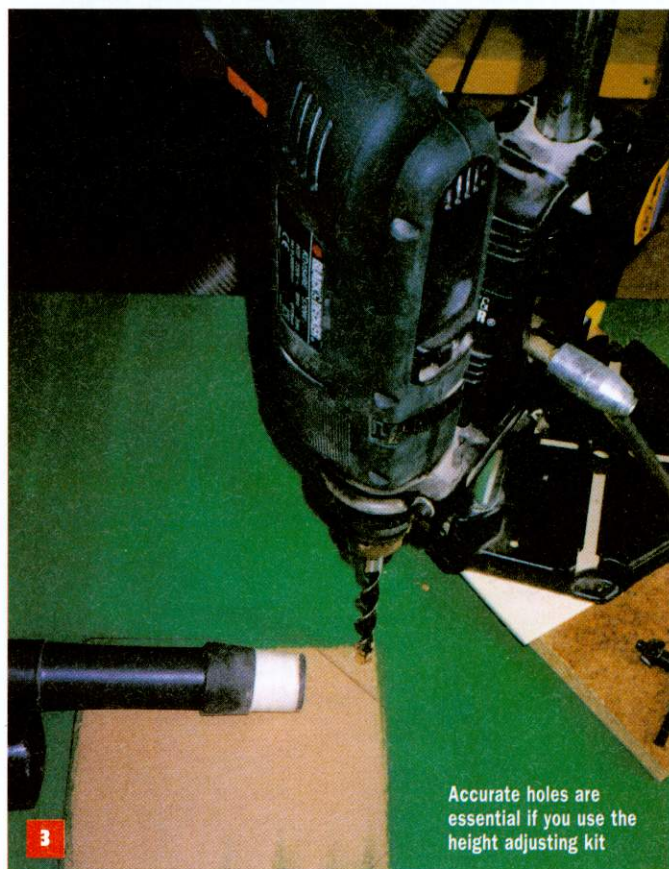
Woodcut insert plate

I bought this insert plate from

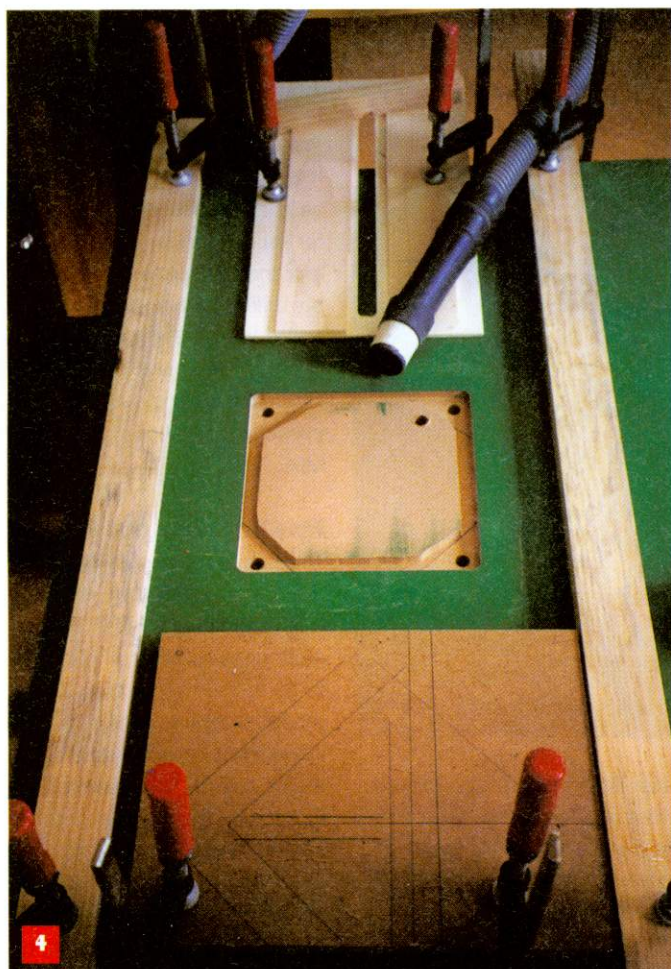
Woodcut, but it is supplied in several other commercial router tables. A substantial piece of equipment made from very rigid



Ready for the insert to be fitted



Accurate holes are essential if you use the height adjusting kit



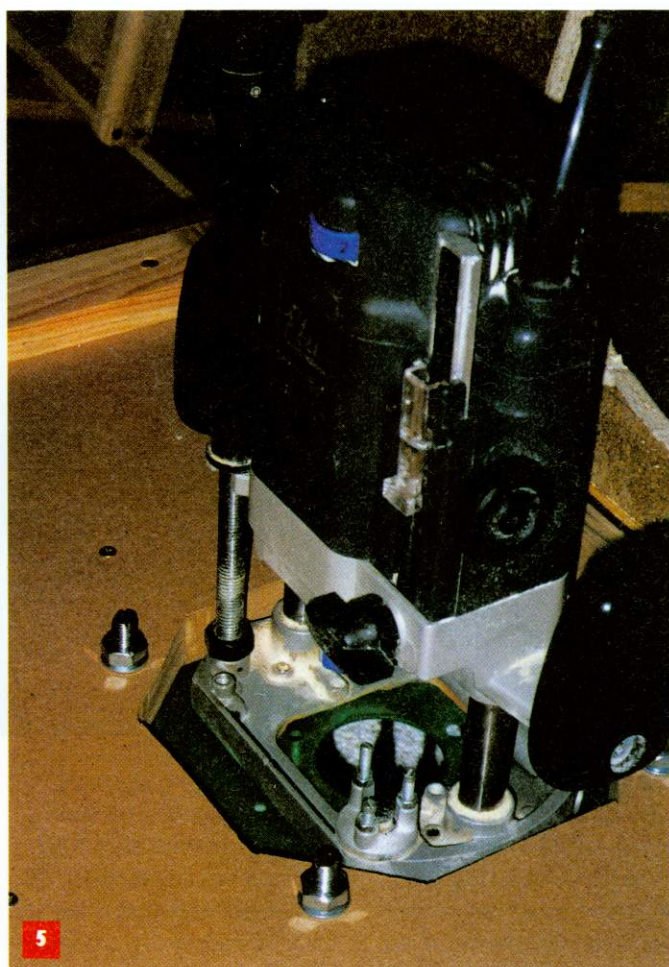
The middle can now be removed with a jigsaw

material to hand, I confess I ignored this advice as well and used the four baton method

shown (see pic 1). It works well and is a lot easier and quicker. Just make sure you use a

General advice

Whichever road you go down, any router insert you buy to fit yourself will require you to have access to a router with a round or 'D' shaped base to allow you to get into the corners and rout right around in one pass. Router bases with two flat sides cannot do this. You will also need a half inch straight cutter with plunge cut ability and preferably, crucially almost, a fine height adjuster fitted to the router. You will need to establish the exact distance from the edge of your cutter to the edge of the router base in order to work out the maths necessary to enable you to cut out the insert housing to a snug fit. Measure it across, divide by two and then take away half the cutter width. It is better to err on the side of caution when cutting the outline and deliberately cut it slightly undersize. You can then move out two sides a fraction at a time until you get a snug fit. Finally, plastic vernier callipers with a dial gauge are only a few quid and will ensure really accurate depthing. They will also be useful for ever more.



If your table tilts you will find extra retaining nuts are necessary

square to keep all the edges at right-angles to one another.

Mounting

Using the Elu's fine height adjuster and vernier dial callipers I cut the outline for the insert down to the required depth of $\frac{1}{4}$ in to accept the outer lip of the insert. I then tried the insert (upside down at this stage) for fit and found that as expected I needed a slight enlargement before it would fit. I drew pencil lines along the top of my straight edges to help me gauge distance and then moved them in the required 1.5mm. A second cut and the insert and recess matched.

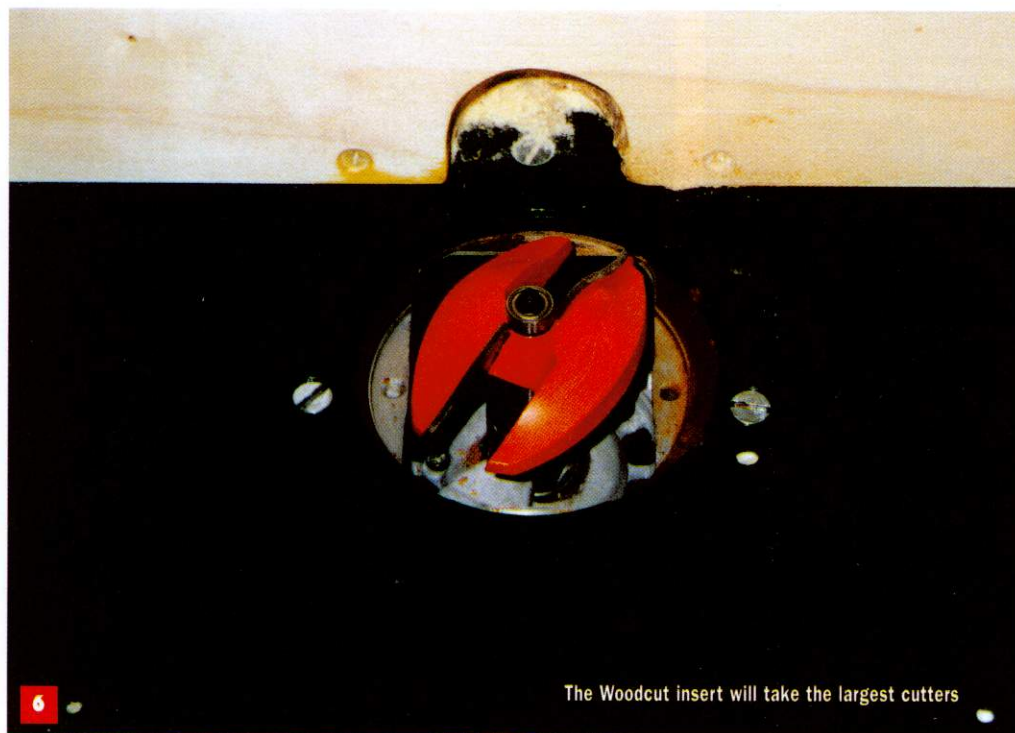
I now moved all the retaining batons inwards by just under half an inch and made a second cut to the depth of just over half an inch deep to accommodate the main body of

the insert. The idea being to leave a supporting ledge all round. When doing this I moved one baton at a time and re-cramped it making sure it was square to the adjacent two batons. After making the cut I then tried the insert in the recess and it fitted nice and snugly.

The next job was to cut the middle of the hole out with a jigsaw to make room for the Elu and the job was finished (see pic 2). The insert was now dropped into the hole the right way up and screwed into place through the four corner holes provided. A piece of wood was then passed across the insert to ensure all was flush and true. Thanks to the vernier callipers, all was well.

Drilling

This insert does not come pre-



The Woodcut insert will take the largest cutters

drilled to mount a router, you have to do this yourself. To help this there are a series of circles and radial lines on the rear of the insert to help you position the holes correctly. I removed the plastic base plate from the Elu and used this as a template to mark the position of the holes.

This plastic is very strong, but brittle and prone to breakout if care is not taken. You will get the best results from using drill bits meant for cutting metal, run at a slow speed in a drill press or drill stand. Using my layout marks I first used a 2mm drill going in from the back, to get a pilot hole. I then put the final

size 7mm drill through from the front after cramping the insert to a piece of backing wood to prevent any breakout. The same care is needed for countersinking. Go slowly and gently and you will get a good result.

Bosch/Trend insert plate



Mighty meaty, big and beefy. A professional tool

This insert plate is the one found in a series of router tables including those marketed by Bosch and Trend. It is a stamped out metal plate and can be bought pre-drilled for your particular router. The fact that this plate was already pre-drilled for both my routers was a bonus. The table top used this time was exactly the same dimensions as the previous table, but made from MDF.

Routing the outline

The fact that I was going to use the height adjustment kit with this insert made things a little more complicated as holes had to be drilled to take the threaded inserts for the adjustment bolts. To do this I placed the plate on the table in the position required and drew around it, marking the position of the retaining holes at the same time. I then used a hand drill in a drill stand, clamped to the table, to accurately drill the holes for the mounting screws (see pic 3). It was then a matter of routing out the outline the same as before, remembering this time to take enough depth of material to allow for extra room required for the height adjusting screws (see pic 4). I then cut the centre hole out with the jigsaw.

Adjusting kit

The adjusting kit consists of threaded inserts driven into the holes you made in the table and held there by short spikes. Threaded rods are then screwed through these. The threaded rods are in turn drilled and threaded internally on one end to take the countersunk screw that holds the insert in place, and have a slot for screwdriver adjustment on the other. In theory you screw the insert down into place and make any adjustment from beneath with

a screwdriver. In practise what happened was I got the plate perfectly level until the weight of the Elu was added. Then it required adjustment again. The added problem was that when I tilted the table to get at the underneath for adjustment, the weight of the router made the spikes on the threaded inserts pull away from the MDF. I ended up buying extra nuts and washers from my hardware store and fitting them underneath the table to prevent this (see pic 5).

Pros and cons

The Woodcut insert plate is a very strong and professional piece of equipment. It is slightly domed to ensure that the cutter always meets the timber in the right place and when both the insert rings are removed the aperture is big enough for the biggest of cutters (see pic 6). Against it is its thickness. The lost half an inch means that smaller routers and cutters will be struggling to get sufficient depth of cut because the smaller cutters invariably have shorter shanks. This insert plate is really for professional half inch routers and cutters. When used with these it is brilliant.

The Bosch/Trend metal insert plate is the opposite. It is only about three sixteenths of an inch thick and will cause no trouble over depth of cut with any router and cutters I know of. It can also be bought pre-drilled for nearly any router on the market. Surprisingly this insert is not completely flat, there being nearly half a millimetre difference between the corners and the sides. I believe this is because the plate is stamped out, which always causes some slight distortion. This distortion is exaggerated a whole millimetre when you hang a big router like the Elu 177E on to it, causing



Fine for all but the biggest routers and cutters

some difficulty. Objects passed across the table snag on the high corners. If you adjust the insert to get these correct there is a gap between the main body of the plate and the table.

I was so surprised by this that I tried a second insert plate and found this was the

same. Not to be beaten I went through the whole process again of making a table for this plate, but this time without the adjuster kit. This time when I screwed it down it pulled the corners down level and I had an acceptably flat plate. That said, the aperture when all insert rings are removed is not

large enough to allow large panel raising cutters to be used and the insert rings themselves are rather fragile and in my opinion do not stand up well to regular use. For the cost of the plate I would expect the top surface of the insert to be ground flat and more substantial inserts provided.

Conclusions

If you want an insert plate to use with a big beefy router and half inch cutters then the Woodcut plate is the one for you, providing you do not mind drilling the mounting holes yourself, carefully and slowly. The aperture is big enough for the largest cutters and the plate itself sturdy enough for the largest routers (see pic 7) and the slight doming really does work well. There is definitely no distortion.

If you want an insert plate that is already drilled for your router and you do not want to use large panel raising cutters, then the Trend/Bosch type metal insert plate may well be the one for you. You will have no trouble with depth of cut restrictions no matter what shank size your cutters are. Mount it direct so that it is supported all around and you can even hang large routers on it without a problem (see pic 8).

As for height adjustment kits, I would leave them alone. They make the whole business more difficult and by their very nature they detract from the stability of the insert plate by only supporting it in the extreme corners. The only reason you might need one is because you have to cut the seating for your insert plate a little too deeply. If you use a dial gauge vernier calliper, and they are only about £12, you can adjust the depth of cut on your router extremely accurately and prevent this. If you still go a little too deep put a cardboard template under the insert plate to bring it back to the right height. It will be cheaper and a lot more stable.

Finally, both these plates work very well within their limitations. It's horses for courses however, as the perfect universal router plate insert to suit all routers and cutters has not yet appeared. I get round this by having interchangeable table tops. One for the big stuff and one for the finer work. However, If anyone comes up with the perfect insert plate, give me a call.

Routing challenge

The International Woodworking and Turning Exhibition at the NEC gives you the chance to enter your best piece of routing work in our Routing Challenge competition and be in with the chance of winning up to £750 worth of DeWalt tools. The competition is completely open to any piece which clearly demonstrates the use of this most versatile of power tools

Sponsored by DeWalt



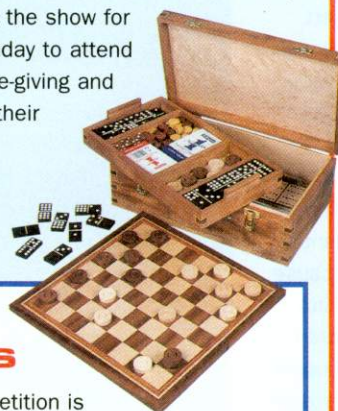
Medals for merit

In addition to the prizes from DeWalt there will also be Medal awards for quality workmanship. There will be Gold, Silver and Bronze awards for work which is deemed to be of an appropriate high standard. So make it your best work yet and you could be rewarded with a Gold Medal to keep as a lasting tribute to your craftsmanship.



How to enter

- 1 First, fill in the Registration Form (to arrive no later than 21st September 2001) to let us know you want to enter the competition. Please send a photograph of your project as well.
- 2 Send or bring in your finished project to Nexus House, Azalea Drive, Swanley, Kent BR8 8HU. Remember to include your Entry Form. This must arrive here no later than Friday 28th September.
- 3 All entrants will receive two free entry pass to the show for the Sunday to attend the prize-giving and collect their pieces.



Rules

- The competition is open to readers resident in Great Britain, Channel Islands, Eire and the Isle of Man.
- All entries will be displayed at the NEC Exhibition between 5th - 7th October 2001.
- The judges' decision is final.
- No entrant may win more than one prize.
- All projects must be the entrant's own work.

The challenge

You can enter any project that clearly demonstrates the use of the router and which is of your own design. Projects can range from small items such as jewellery boxes or storage chests to larger items of furniture such as tables. The choice is yours, and it is up to you show your creativity and demonstrate the versatility of the router.

Displays of work are one of the focal points for visitors to our woodworking shows, and we encourage you to take pride in your craftsmanship and contribute to the display at the International Woodworking and Woodturning Exhibition which takes place in Hall 10 of the National Exhibition Centre, Birmingham from 5th to 7th October 2001.



RETURN OF ENTRIES

Entries should be collected from the NEC Exhibition Hall after 5pm on the last day of the show (Sunday 7th October). Please ensure your entry is well packed and please write your name and address and the name of the competition clearly on the package. If you wish to make alternative arrangements for delivery or have other queries relating to this competition, please telephone the editorial offices on 01322 660070.

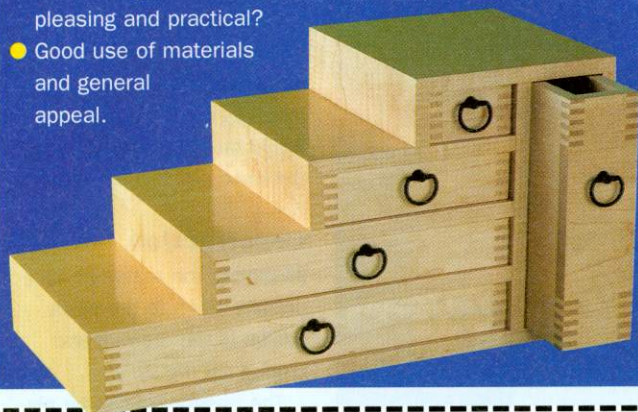


£1650 PRIZE COMPETITION

Judging criteria

All entries will be judged at the show on the basis of:

- Creative use of the router, whether this is as a precision tool or as a means of applying decorative effects. Consideration will also be given to the techniques employed and the creative use of jigs and templates.
- Craftsmanship in good use of tools and the finish achieved.
- Design and originality: does the item serve its purpose well, is it an original idea, and is it visually pleasing and practical?
- Good use of materials and general appeal.



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REGISTRATION FORM

PLEASE NOTE - THIS IS NOT AN ENTRY FORM

Send this coupon to: Routing Challenge Competition, Nexus House, Azalea Drive, Swanley, Kent BR8 8HU

Name

Address

Postcode Tel No:

Description of project

Wood(s) used

Date

Signature

Estimated value for insurance

Please complete this form and return it to arrive no later than 21st September 2001

ENTRY COUPON

THIS FORM MUST ACCOMPANY THE PROJECT

To be sent with your project to:

Routing Challenge Competition, Nexus House, Azalea Drive, Swanley, Kent BR8 8HU

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Description of project

Wood(s) used

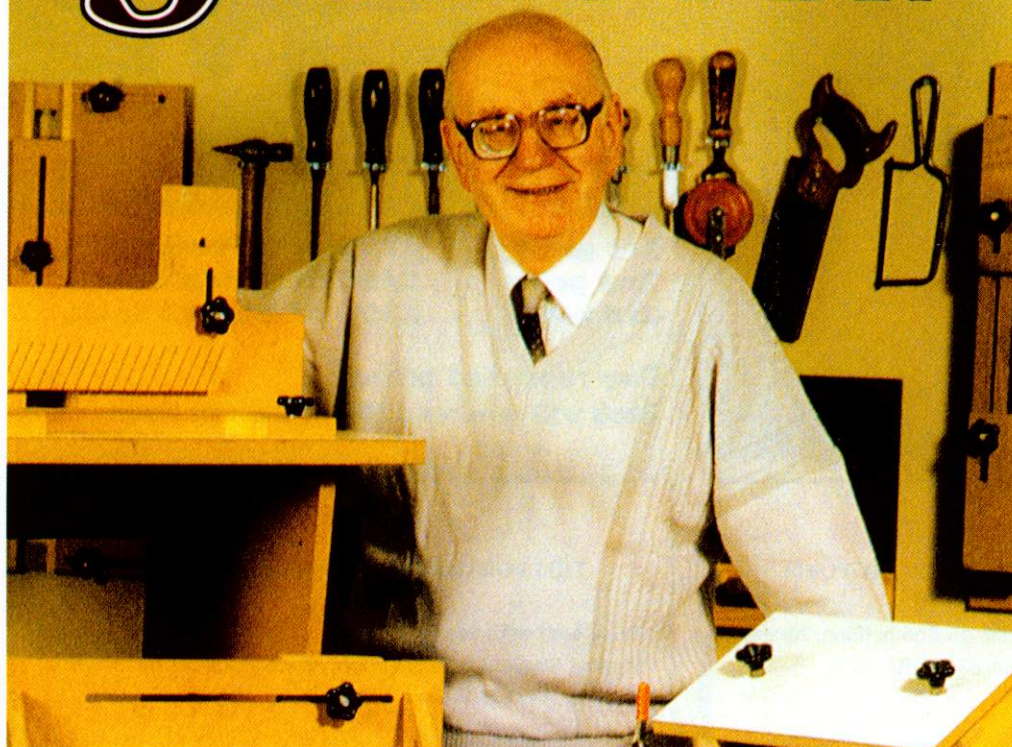
Date

Signature

ROY SUTTON'S

Jig Making

FOR THE ROUTER



The tenoning jig

Our series of extracts from the late Roy Sutton's book, 'Jig making for the router' concludes this issue with the tenoning jig

The mortise and tenon joint is frequently used in many forms of construction, doors, windows, tables and chairs being typical examples. Tenons can be cut in a variety of ways. Cutting by hand demands skill and practice if satisfactory results are to be achieved. Special tenoning

machines are available for the professional woodworker, but the bandsaw, circular saw and spindle moulder can all be adapted for tenon cutting, albeit in some cases in rather a hazardous manner.

The router can also be used to cut tenons accurately, quickly and safely if the workpiece is held in a suitable

jig. It will cut short stub tenons if the machine is mounted in a table, but a purpose-made jig that will accommodate much larger workpieces will be more accurate and safer (fig 1).

A tenoning jig made to the dimensions shown in the drawings will enable you to cut tenons up to 70mm long, in material up to 150 x 50mm. If

This extract is taken from Roy Sutton's book 'Jig making for the router'. This excellent book is now available to Routing readers for the special price of £12.90 postage and packing free. To order your copy call the sales hotline on 01322 616300, fax your order on 01322 616319 or write to Roy Sutton Book Offer, Routing, Nexus Media, Nexus House, Azalea Drive, Swanley, Kent BR8 8HU.

Please make cheques and POs payable to 'Fine Grain Productions'.

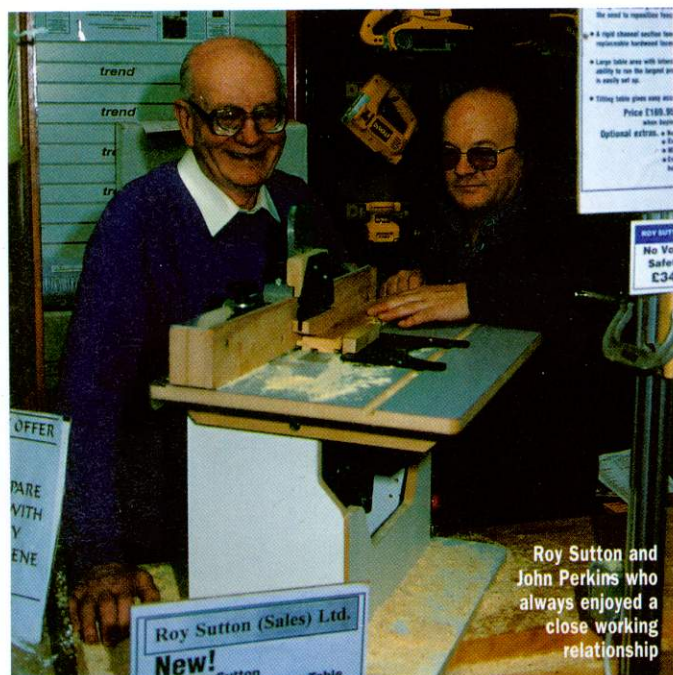
longer tenons are required a larger jig could be made, but it would be necessary to extend the base plate of the router.

Construction

Assemble the materials and prepare them to the sizes shown in the drawing and cutting list (fig 2).

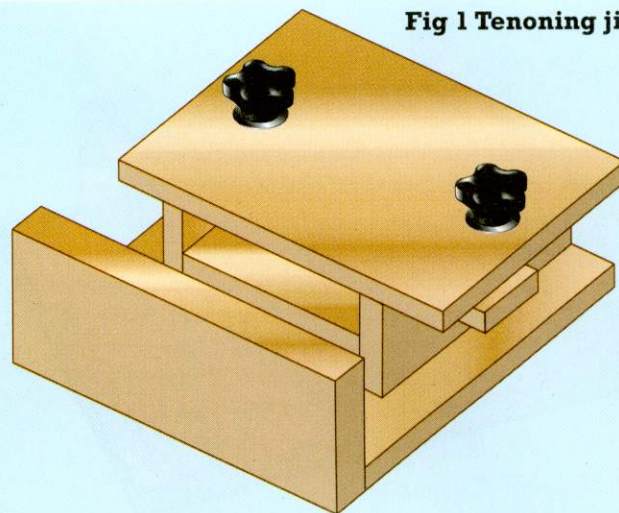
The baseboard can be ply, MDF or chipboard but it must be square and perfectly flat. The notches in the battens are marked in the position shown in the drawing and are cut leaving 12mm at the bottom of the notch (fig 3).

The top board is best made from 12mm hard ply or MDF, chipboard not really being suitable. Check that the board is square and that the 300mm edge, against which the router will run, is perfectly straight. Put a mark on the board to indicate that this is the running edge. The board is now drilled and countersunk and the notched battens are screwed in position. It is vitally important that the battens are fixed square to the running edge. The easiest way to achieve this is to insert one screw, square the batten and hold it square with a cramp before inserting the remaining screws. As the notches in the battens are not centrally placed ensure that the 90mm end



Roy Sutton and John Perkins who always enjoyed a close working relationship

Fig 1 Tenoning jig



Base board
18mm MDF 350 x 300mm

Plastic laminate
306 x 256mm

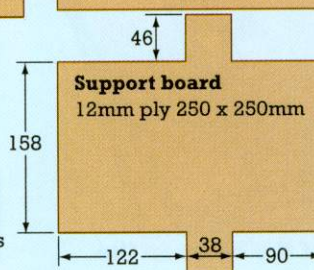
Top board
12mm ply 300 x 250mm

NB. Make the 79mm slightly oversize to allow for accurate levelling with the plastic faced top board.

Side rail
hardwood 300 x 79 x 19mm

Hardware
Two M8 studding x 70mm
Two M8 star knobs and washers
Two M8 tee nuts

Fig 2 Construction
All dimensions in millimetres



with a straight edge to ensure that the running board is level with the laminated top. The 85mm lengths of screwed rod are secured to the plastic knobs with Locktite or a similar compound, or with a lock-nut. An 8mm washer is placed on each rod and the assemblies are screwed into the tee nuts. The support board should move up and down freely.

Using the tenoning jig

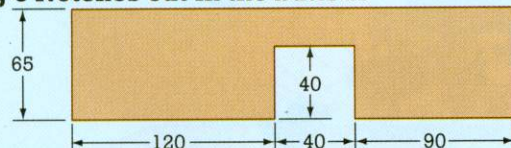
The jig can be used with any router that has a guide bush (template guide). An effective combination is a 19mm two flute TCT cutter with bottom cut and a 24mm guide bush.

A strip of timber about 12mm thick and slightly thinner than the piece to be tenoned is

Fig 4 Cutter for trimming the laminate



Fig 3 Notches cut in the battens All dimensions in millimetres



abuts the running edge.

The plastic laminate is now fitted to the top board, leaving 1mm to 2mm overhang all round for trimming. Impact adhesive is best for securing the laminate. The overhang can be removed with the router using a bearing or pin-guided laminate trimmer or with a hand plane, again paying careful attention to the running edge (fig 4).

The support board needs to be 12mm ply or MDF. Chipboard is not suitable as the board is subject to a certain amount of strain. Cut the support board to

the sizes shown in the drawing and try it in the notched battens. It should be a slack fit so the board can move up and down easily (fig 5).

The easiest way to ensure that the 9.5mm holes in the top board are in the correct position is to drill them from the underside in the exact centre of the notches in the battens. This will require a fairly long drill and care must be taken that the plastic surface is not damaged when breaking through. Laying the job on a piece of scrap material will

avoid breakout (fig 6).

The position of the holes in the support board is marked by placing the board in the batten notches, supported on a suitable block (fig 7). Lightly mark the board with a drill, remove it and then complete the boring operation. These holes are to receive the pronged tee nuts and may have to be slightly enlarged. Hammer the tee nuts into the underside of the support board, ensuring that they are entered straight.

With the support board in place, the jig can now be assembled, the baseboard being screwed to the battens from the underside (fig 8). The running board is also fixed at this stage.

A check should be made

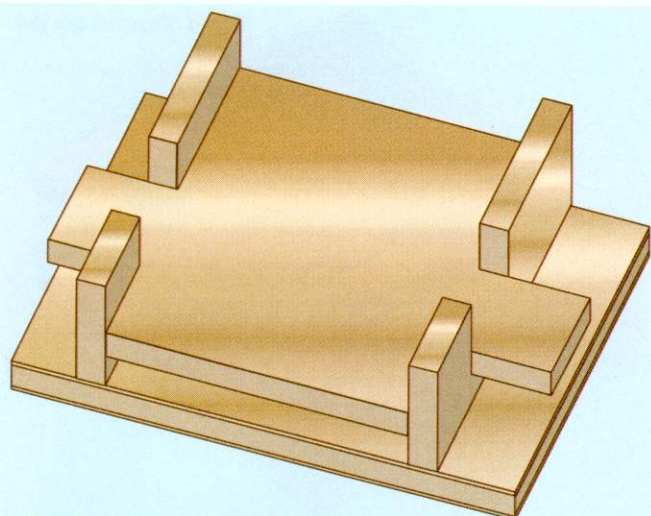


Fig 5 Ensuring that the support board is a sliding fit in the batten notches

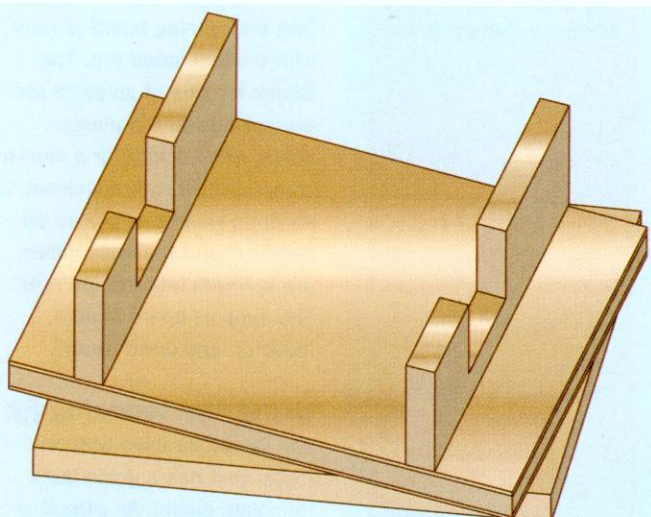


Fig 6 Marking the position of the holes in the support board

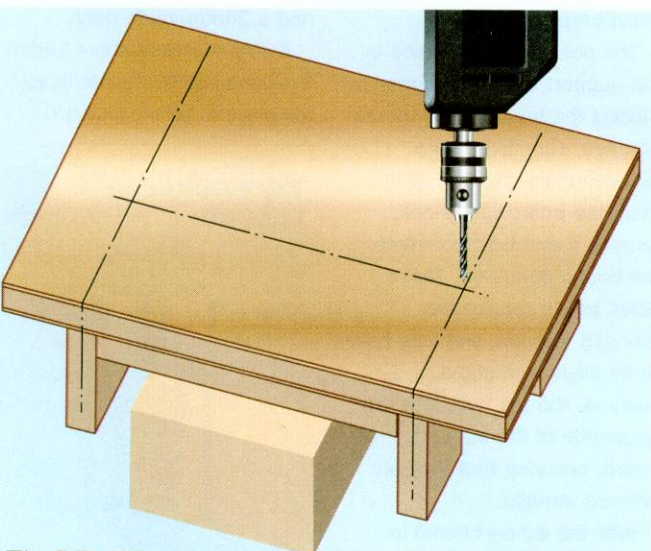


Fig 7 Drilling the 9.5mm holes in the battens

secured to the inside face of the front batten with double-sided tape. This is called a 'spelch block'. Its purpose is to prevent

breakout at the end of the cut and provide a reference point for lining up the tenon shoulder on the workpiece (fig 9).

Fig 8 Base board screwed to the battens

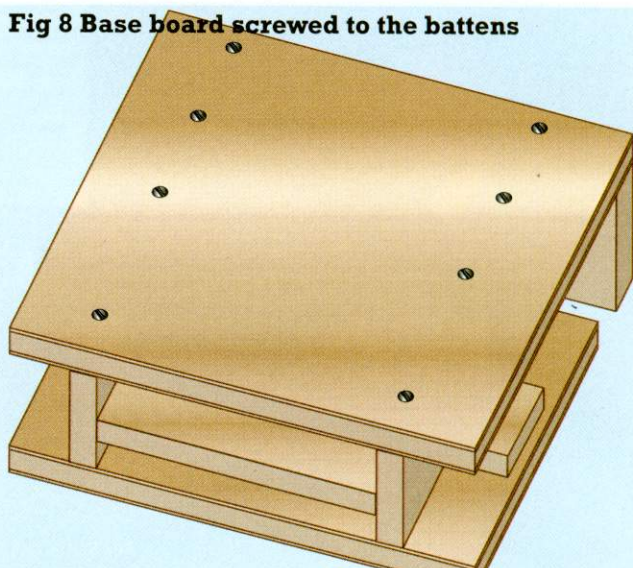


Fig 9 Jig ready for use with the spelchblock in place

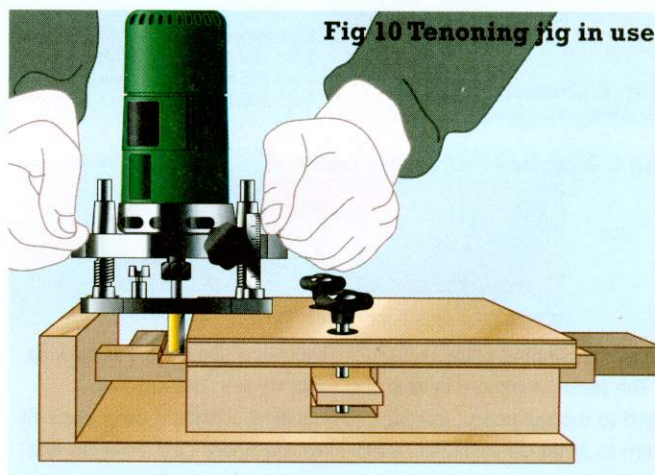
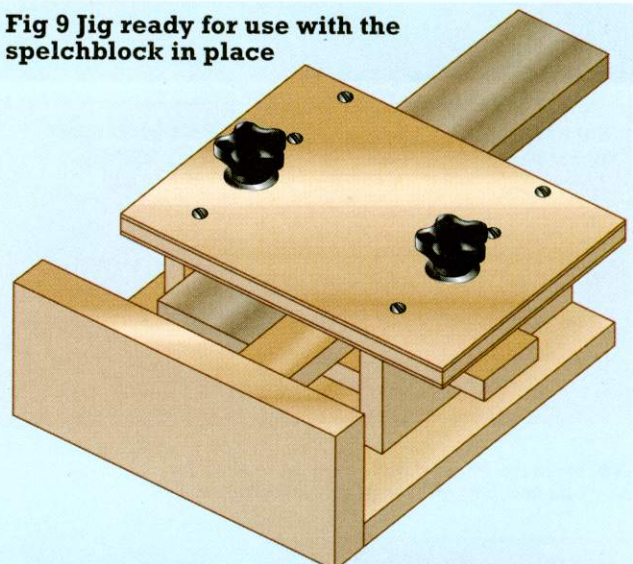


Fig 10 Tenoning jig in use

It is always a good idea to use a setting-up piece, so that an accurate tenon can be cut before the actual workpiece is committed. This try piece should be exactly the same thickness as the workpieces and have the tenon thickness marked on it. The cutting depth is set and a trial cut is made in several passes. It is normal practice to form the mortises

before cutting the tenons since, as mentioned, it is much easier to fit a tenon to a mortise than the reverse. The cutting height of the router is adjusted until a satisfactory fit is achieved. The shoulder lines (fig 10) and the tenons can be accurately cut by lining these with the cut shoulders on the spelch block.

noted at this point that the bottom drawer has its front panel set a little lower than the other two (b) and (c). This is required by the fit of the drawers into the cabinet, as illustrated in (d) and pic 3. Individual members are detailed in figs 2 - 5. The front member is screwed to the remainder of the assembly with No. 6 woodscrews into the side members, as shown in fig 1(b), but not into the base, since the screws will almost certainly interfere with subsequent veneering, as will be seen. All contact surfaces will, however, benefit from gluing as well.

Decorative part

The main decorative part of the drawer fronts lies in the moulded scalloped front panels, as can be seen from pic 1. These are essentially similar, apart from length, to the three panels which decorate the end of the cabinet, all necessary dimensions being given in fig 6. I would suggest that dimensional stability and good finish from the router is helped by making the panels from mitred strips of hardwood, with a ply centre panel glued in place.

The corner scallops and coves may be cut using a trammel system such as the Trend Pivot Frame (pic 4). The straight coves are not easy to machine safely with a bearing-guided cutter, since there isn't much for the bearing to work against. It would of course be possible to make an exact 1:1 template, but another method, using a plain cove cutter

The router is an essential tool to produce the incurved corners and the decorative beading

CD Cabinet

In part two of his three part project, Jack Cox tackles the cabinet drawer decoration and main carcass construction

A typical drawer assembly is illustrated in pics 1 and 2. The main carcass work involves the router more as a useful adjunct to the work,

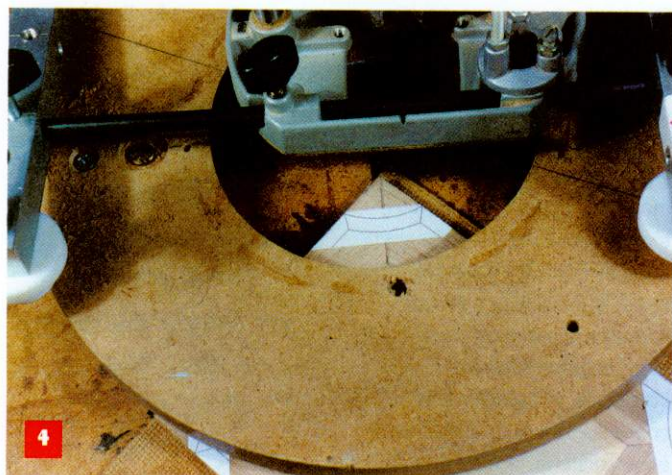
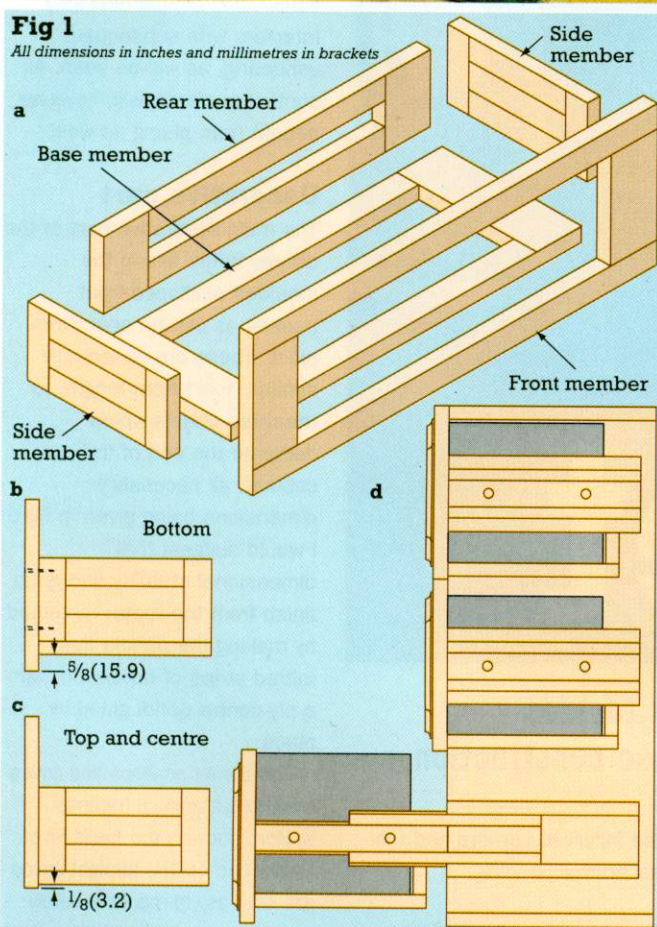
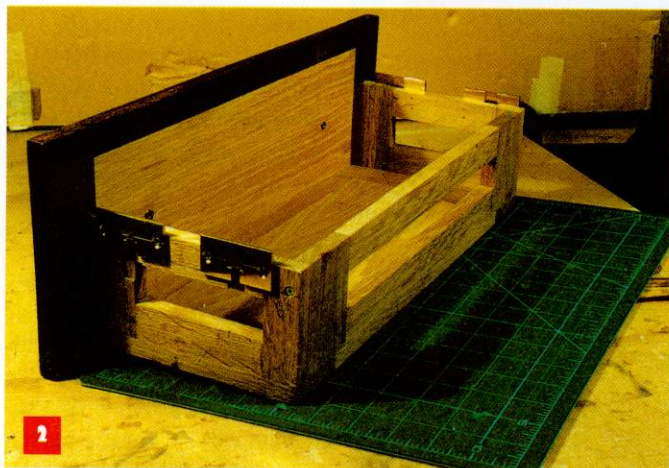
rather than an essential requirement. The decorative front drawer panels (and the three similar panels on the end of the main carcass) are something else - the router is an essential tool to produce

the incurved corners and the decorative beading.

Basic construction

The basic drawer construction is formed from a set of oak strips. These give a great deal of strength and support, without being unduly heavy. It would of course be possible to make the drawers in rather simpler (and perhaps cheaper) fashion from, for example, sheet MDF, but this would increase the overall weight. The main components are illustrated in fig 1(a), and comprise five simple frame constructions. It may also be





(no bearing) is illustrated in pics 5 and 6. The small panels and the long sides of the drawer panels are easily machined by setting the workpiece parallel to an accurate fence, and using the router on a ski system. The long sides of the drawer panels may,

however, interfere with the ski system as it stands, and a form of 'overhanging' ski system becomes necessary. This is illustrated in pic 5, using the Pivot Frame jig.

The router is mounted outboard of the jig, its weight

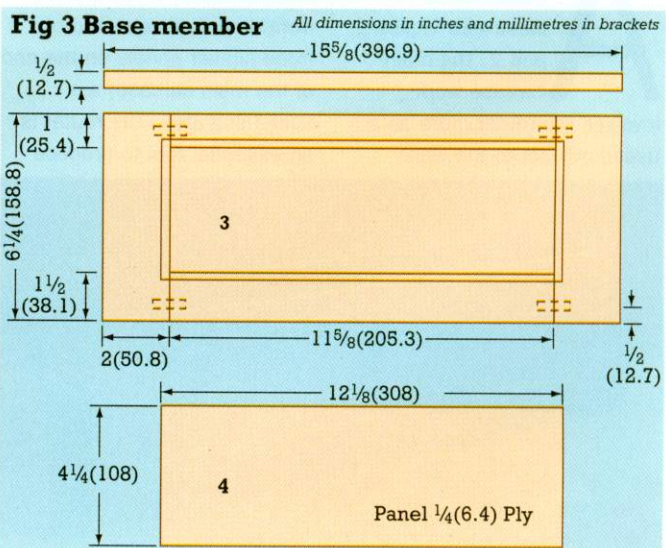
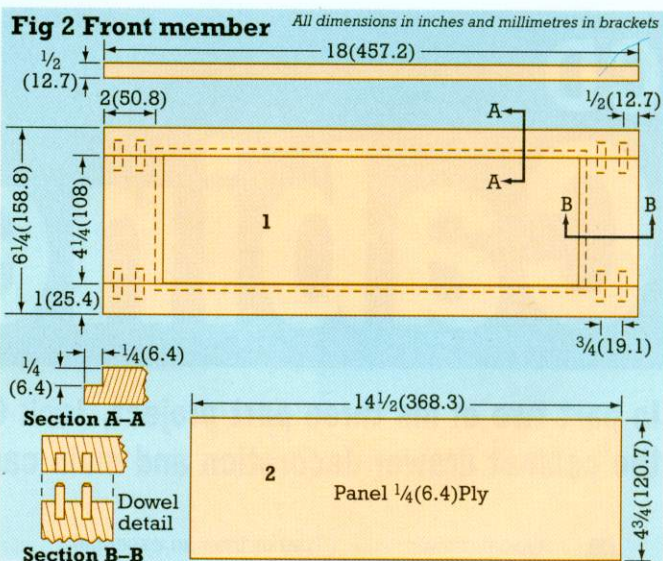


Fig 4 Rear member All dimensions in inches and millimetres in brackets

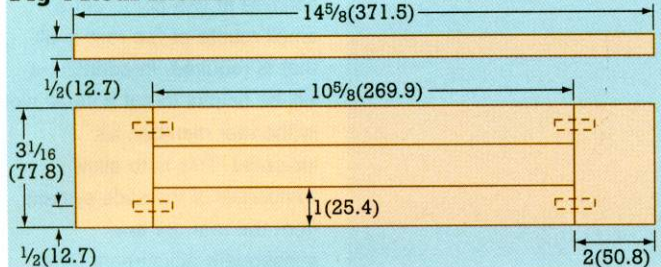
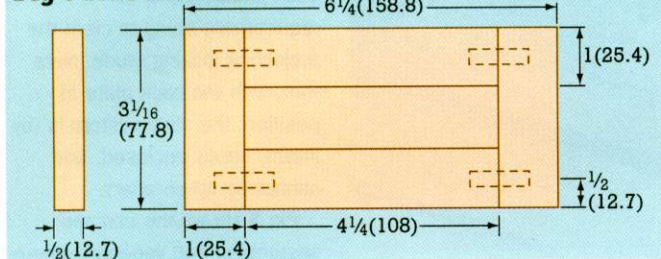


Fig 5 Side member All dimensions in inches and millimetres in brackets



being counterbalanced by the heavy brass bar laid across the guide rods at the far end. Further support for the router is provided by the thin wood strip temporarily glued to the top face. The remaining strips in the foreground provide clamping for the workpiece. The ski system is guided by a straightedge fence, shown in use in pic 6. The panel is eventually fitted to the drawer front by plain gluing, but this must wait until veneering (if any) is completed.

Main carcase

The main carcase could, once again, be constructed from MDF sheet, but would be very heavy. I therefore elected to make it with an oak framework and fill-in plywood panels, in much the same way as the drawers. All necessary dimensions are given in fig 7. The rebates for the plywood panels are cut on the outer faces of the framework. There will inevitably be a little router rebate-machining into the dowels used to join the sections of each of the four main panels, but this is of no importance. On final assembly, further dowels are fitted as shown - three per joint will be quite sufficient. Prior to this operation, however, the cut-outs for the runners

must be made. The required machining is simple enough, if carried out against a straightedge, as illustrated in

Fig 6

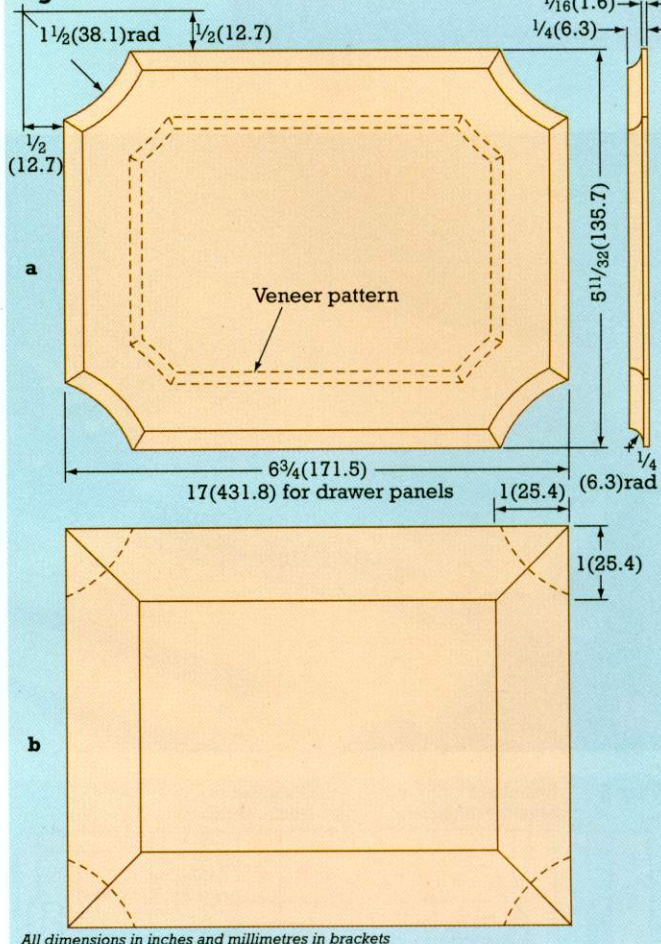
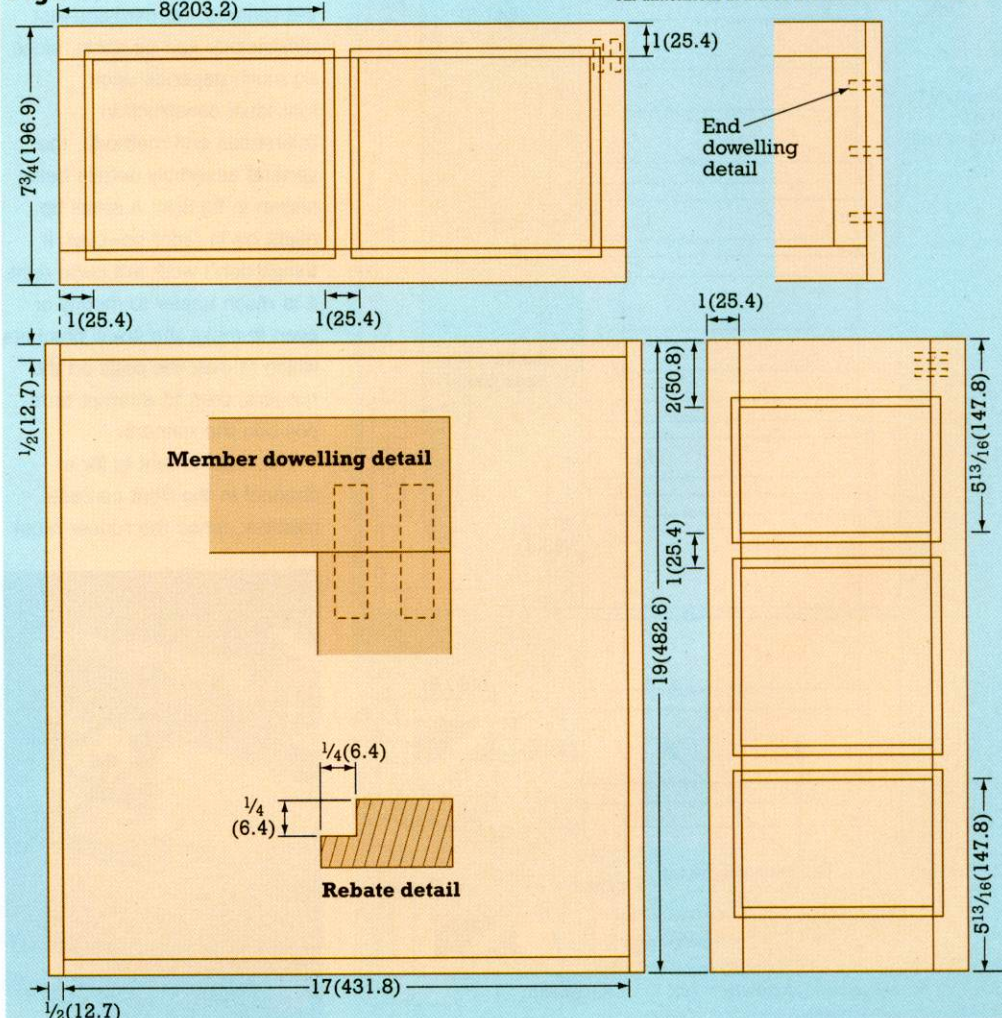
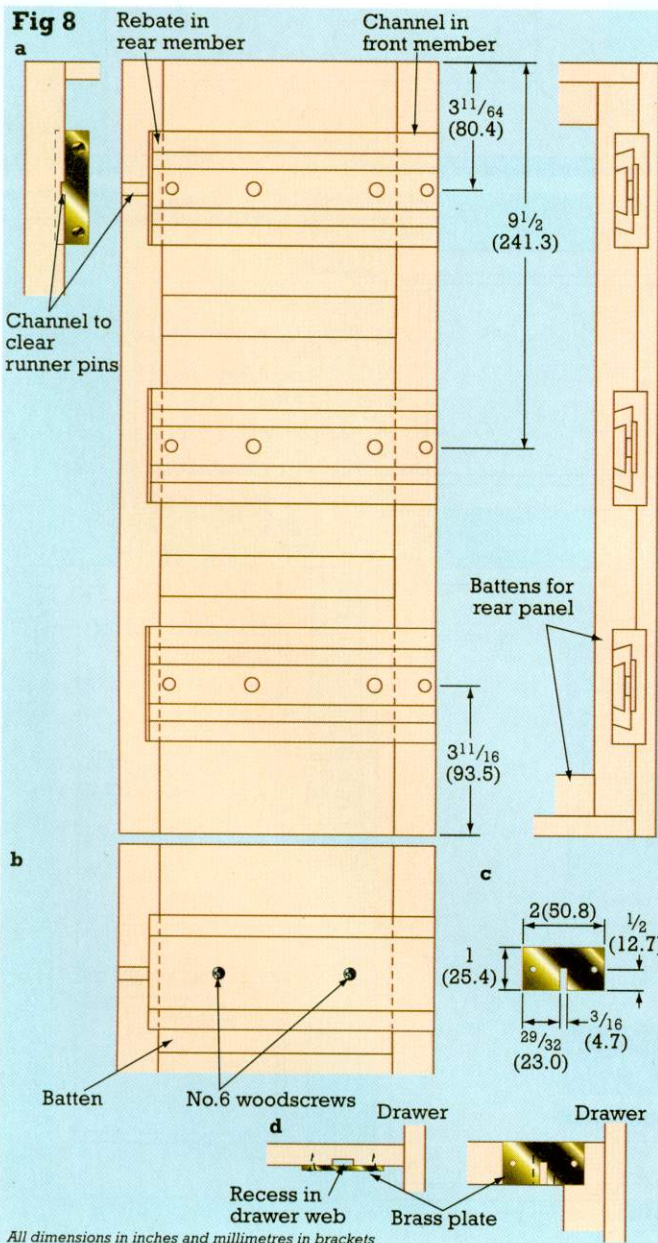
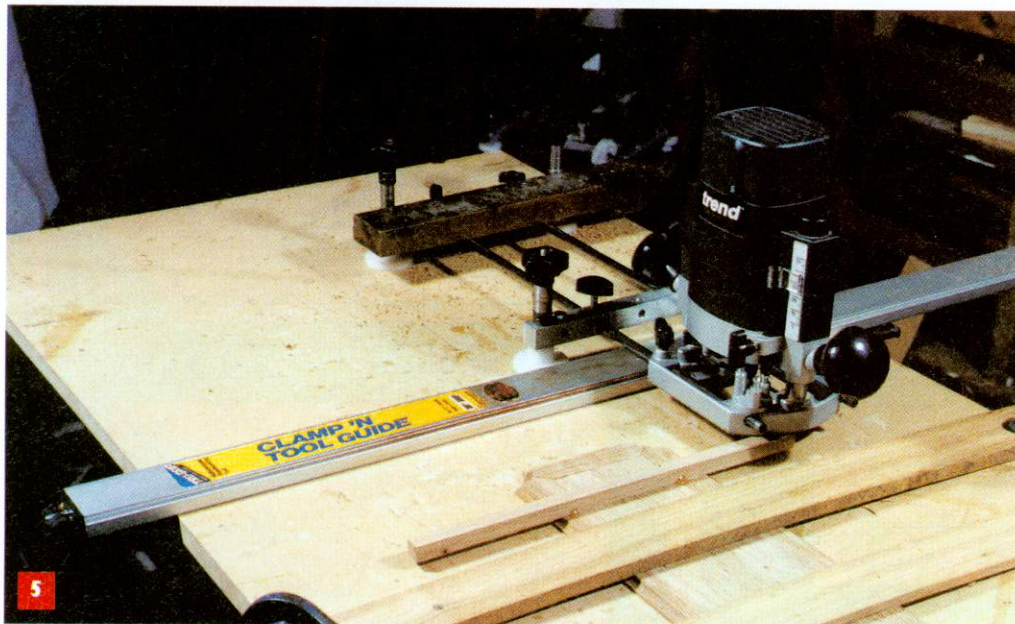


Fig 7





pic 7, but the positioning must be made with great care - and only after the drawers and metal fittings have been made, since the position of the drawers relative to the cabinet will necessarily depend on that of the runners. No hard-and-fast dimensions can be given, since so much depends upon individual construction tolerances and methods, the general assembly details being shown in fig 8(a). A small tip might be in order however, if things don't work out quite right, it is much easier to modify or even re-make the small brackets which fit over the pegs on the runners, than to attempt to re-position the runners.

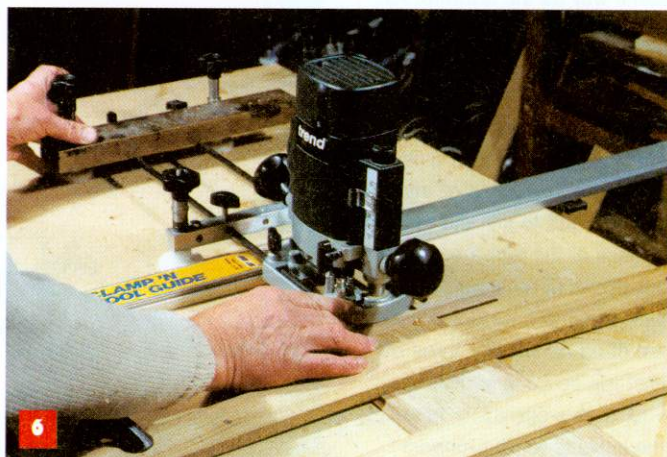
The requirement is for a channel in the front carcase member, since the runner must

be flush with the front of the carcase at this point, but a small rebate at the rear is all that is required. In addition, it will be helpful to cut a small slot in the rear member, as indicated. This is to allow withdrawal of the slide system from the rear, for any subsequent adjustment (after unscrewing and removing the back plate), the only requirement being to clear the projecting locking studs. Note that, with the back plate in position, the slide system is (by intent) totally enclosed, and cannot be taken apart.

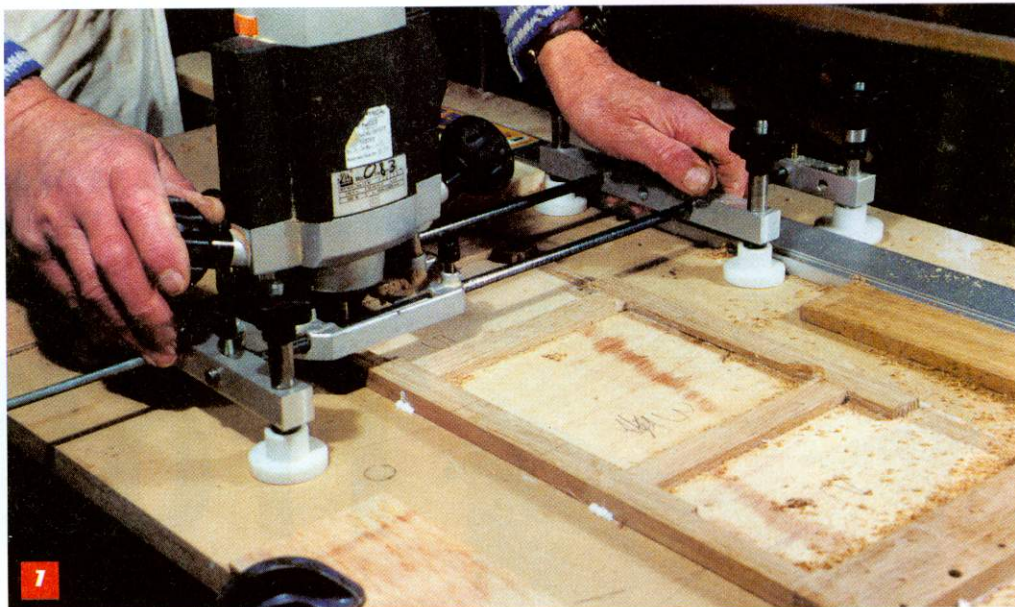
Pic 3 shows the carcase assembled and veneered where necessary, with all slides and one drawer in position. The runner back assemblies are fixed in position with a couple of screws, as shown in fig 8(b). Assembly of the slides is from the rear, with the metal back plate fitted last. Projecting points of the screws on the outside of the carcase may be filed off flush. I do not recommend gluing of the back assemblies to the carcase, in case they need to be removed for some reason but, to give extra support to the drawers, a batten may be glued beneath each runner as shown, after the overall assembly is found satisfactory.

Drawer fitting

Finally, the small veneered panels are glued in position on



the end of the carcass. The drawers are fitted to the main cabinet by means of six pairs of brass plates (fig 8(d)). The nominal dimensions given for the vertical position of the runners on the carcass in (a), allow the plates to be fitted to the drawer webs such that the top edge of the plates lines up with that of the drawers (d), although these may vary slightly in individual cases, dependent upon accuracy and method of construction. It will also be necessary to cut two small channels in each of the top webs of the drawers to accommodate the heads of the studs or screws fitted to the runners. In fact, the fitting of the drawers such that they will support the drawers in precisely the required positions, and also permit complete removal of any drawer, will require a fair amount of patient hand-fitting and adjustment. It will be found



helpful if the slots in the metal plates are not cut to full depth initially, thus permitting a degree of depth adjustment by subsequent hand-filing.

Back panel

This completes the task, apart from making and fitting the back panel. This is made from 6mm

ply to fit snugly inside the carcass. In my case, since this is partially visible in its final location, it too required to be veneered. The panel is screwed to four 1/2in by 1in battens, which must themselves be cut away in places to clear the drawer runners, as in fig 8(a). It is strongly advised that the

battens are screwed to the main carcass, but not glued, thus allowing possible subsequent removal for adjustment or repair.

Next issue...

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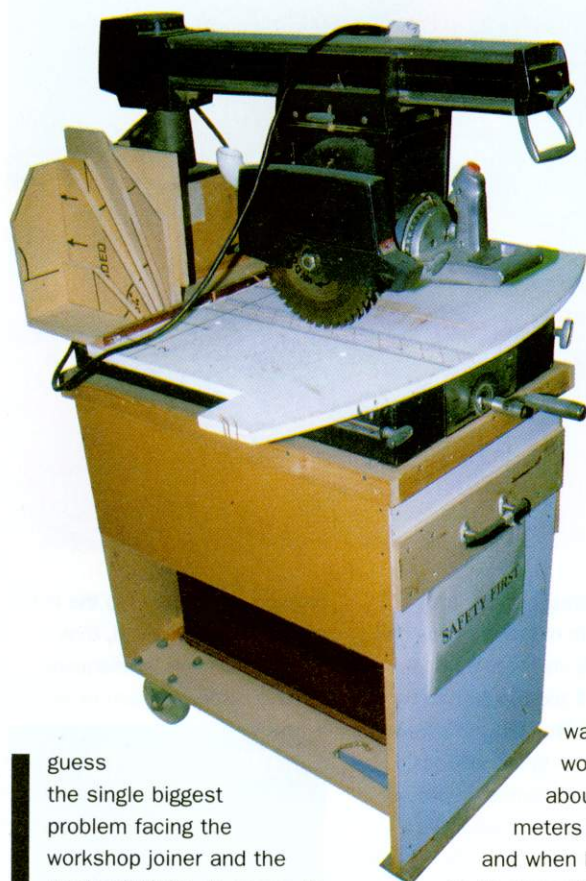
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Our resident woodworking innovator, Kevin Smith, comes up with some more great workshop tips and ideas



Trolley

good idea

I guess the single biggest problem facing the workshop joiner and the weekend DIYer is space. It seems that no matter how much space is available you can always do with more. Working on this premise I resolved to make full use of all of the space I have with as much ease as possible. By this I mean that quite often some tools need to be stowed out of the way, albeit temporarily, or that sometimes there is just not enough space for one particular job.

Ripping down

This first became evident to me when I set up my radial arm saw and found that even though I could cut fairly long lengths of timber I had considerable difficulty when I came to ripping down long lengths. This then was the problem I had to solve, and this is how I did it.

The machine in question is an old Shopmate, a wonderful tool that can achieve as good a result as any modern day saw. Originally it sat off-centre of a worktop that spanned the back

wall of my workshop, about 5 meters long and when I needed to rip down timber over 2 meters I would have to pick the machine up and put it on my workbench in the middle of the workshop.

Some time back I found that by putting lockable wheels on my workbench I could move it around with considerable ease and by locking the wheels it became suitably stable, so why not do the same with any peripheral tools? That was it! The saw was going on a trolley. The two main considerations before cutting any timber were the height of the wheels and the required finished height.

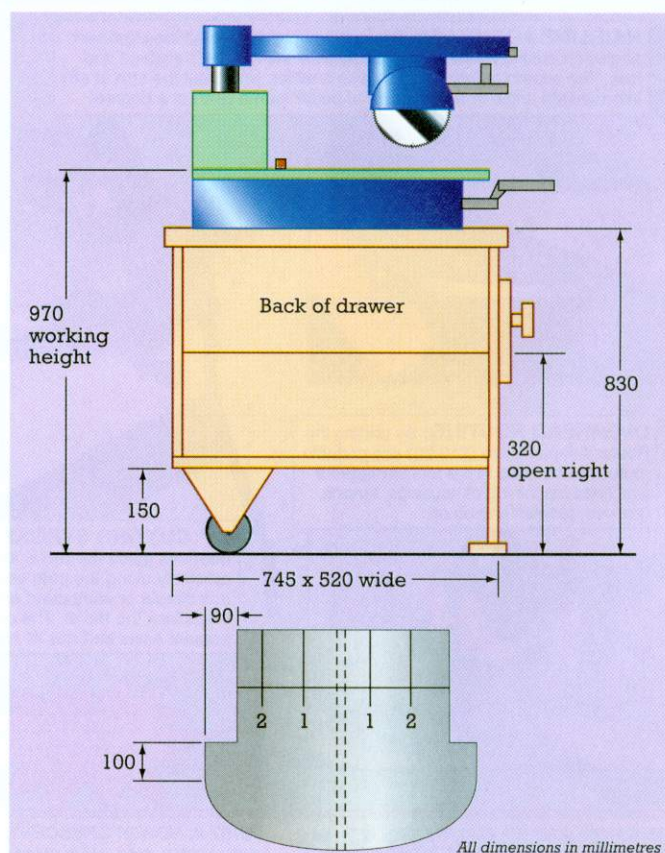
Sturdy wheels

Not being big on spending money if I can get away with it I found a cheap way to obtain sturdy wheels for less than the £45 asked. If you live near a council dump or know of one, have a word with whoever runs it and you will find that if they can salvage some wheels for you they will part with them very reasonably. To date I have bought about nine sets of four

wheels for an average of £8 per set! With this in mind you should make your measurements to suit the wheels you obtain. As I could not obtain lockable wheels I decided to just use two swivelling wheels at the back, this makes it more manoeuvrable, and a ply

terminating piece along the front (see drawing). The frame work is 18mm MDF with a 25 x 50mm lipping.

There is a drawer opening to one side where I keep the very rare spares for my machine and any other related equipment. Underneath I have a shelf accessible from both



sides where I keep my plumbing kit. This does not come out very often but still needs a home. It was necessary to fix an extra piece of MDF across the front to take the handle as the front is lifted by this and I needed a strong fixing.

The reader will obviously make his or her trolley to suit

their own machine and in this case I have made my own top from 18mm MDF that acts as a stop when wheeling the saw back into its slot. I also cut the top close to the sides of the existing long worktop to stop any play, however, I found it necessary to take the back corners off to assist in replacing the trolley.

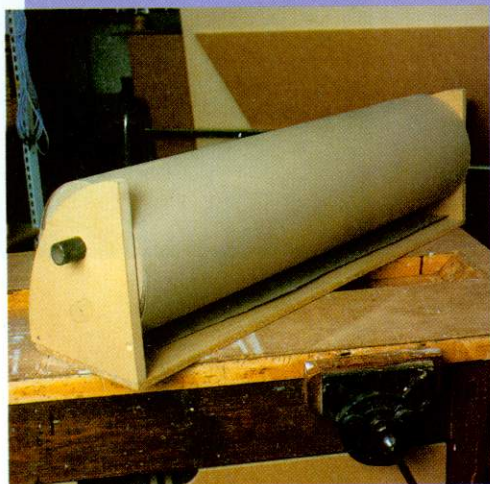
Now whenever I have to rip long lengths I simply wheel the radial saw into the middle of the workshop, set it up for ripping, and open the door. In some cases I even take the saw outside.

More trolleys

I recently acquired another old table saw. Though smaller, this

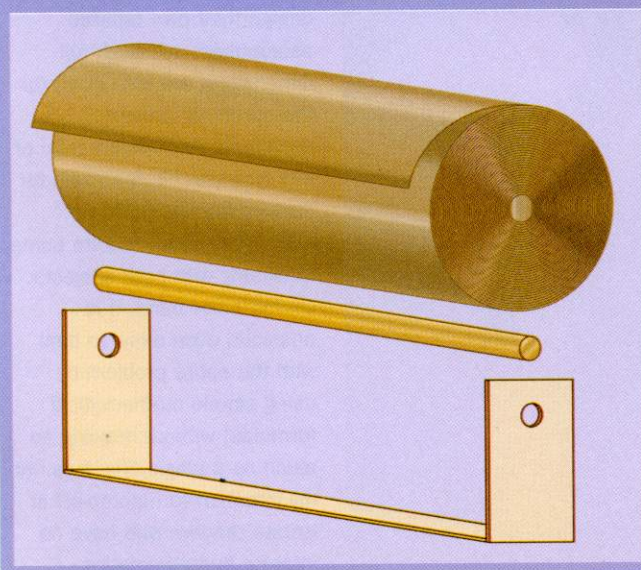
old Coronet multi-tool is ideal for smaller ripping and rebating. This too is now fixed to a trolley and all the relevant equipment is contained within it. This trolley, being smaller, stows away neatly under a worktop and is soon set up. I am now looking for other machines that will benefit from this trolley good idea!

Cardboard underlay



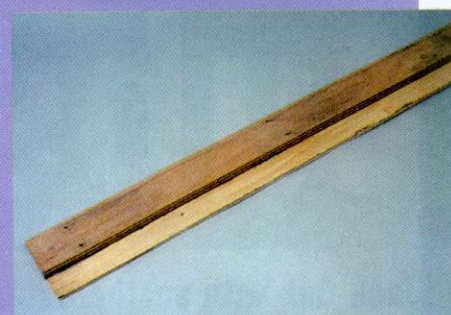
There is a particularly good cardboard that is used by carpet fitters that can be bought on 1m wide rolls and it is excellent to have in the workshop on a free running roller. I use this quite often to make templates for fiddly jobs,

for instance, when racking out a van. With jobs like this you have to keep offering the cut piece up to the side until you have the right cut. The card itself is fairly stiff and when stapled to a 2 x 1 baton it is ideal for the job. When the desired pattern is cut you simply transfer the cut to the timber, thus avoiding any waste. It is also useful to protect surfaces when spraying, or finished items to be delivered. Simple but effective.

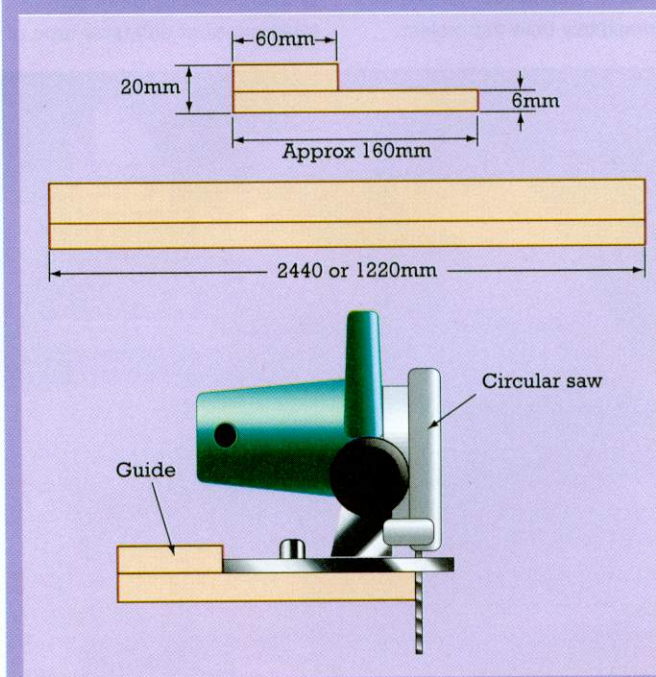


Easy edge

This simple ply straight edge could not be easier yet it has become invaluable for cutting large sheet material in the workshop. I have found it necessary to make one at 1220mm for cutting across a



sheet and one 2440mm to cut the length of a sheet. The principle is the same whatever saw you have. The bottom plate is cut larger than the distance from the blade to the edge of the saw by about 10mm plus the width of the top guide. When the top and bottom are glued and pinned or screwed together the saw is simply run down the length giving an exact width. When you come to cut a sheet you simply put the face of the bottom plate to the marks, clamp it and cut. The only thing you need to be aware of is which side of the mark you cut as you could be out by the thickness of the saw blade about 3mm.



Tapered tubs

Jack Cox with another interesting design to tax both your woodworking and mathematical skills

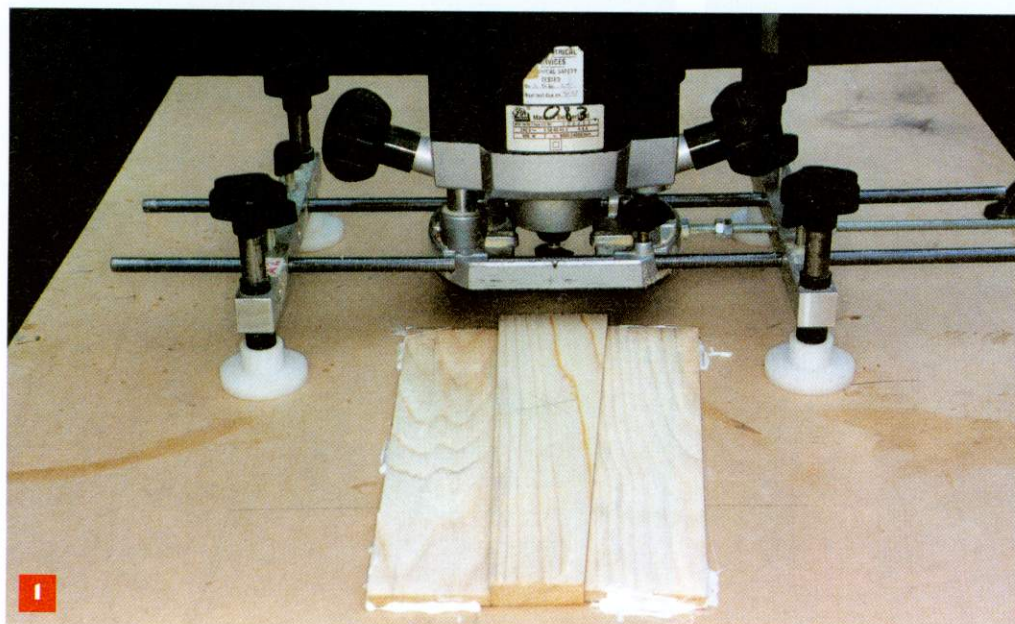
The planter illustrated was devised originally to use up scraps of western red cedar from a larger garden project, and was not expected to produce undue difficulty. In the event, the technical problems encountered took over completely from the project.

The difficulties arose essentially with the assembly of a large number of tapered staves into a 'tapered tube'. This is not in itself an unduly difficult exercise given that the mitre joints between staves are plain butt joints - such problems can be dealt with by tourniquets of adhesive tape of

sufficient tensile strength. If, however, the joints are required to withstand loading, under possibly adverse environmental conditions, some form of keying is advisable. Under these circumstances, the gluing and assembly of all joints at the same session can get a little 'hairy'.

Exact machining

If a large number of tapered staves (sixteen in this case) are expected to produce a neat final assembly, it follows that they must be machined to very exacting standards - and this is where the problems start. A full explanation of all necessary operations is given here, in the hope that readers will find them of sufficient interest to design their own tapered assemblies - although full dimensions are also given for the particular project described. Any construction of this type can be dealt with by drawing and geometry, although this will require some familiarity with both subjects. On the other hand, it is possible, even easy, to deal with the entire problem by using simple mathematical formulae, without drawing so much as a single line. It is not my intention to frighten-off or irritate readers who have no interest in mathematics - I



would merely suggest that such readers interested in a project of this kind find a friend who can perform the necessary calculations.

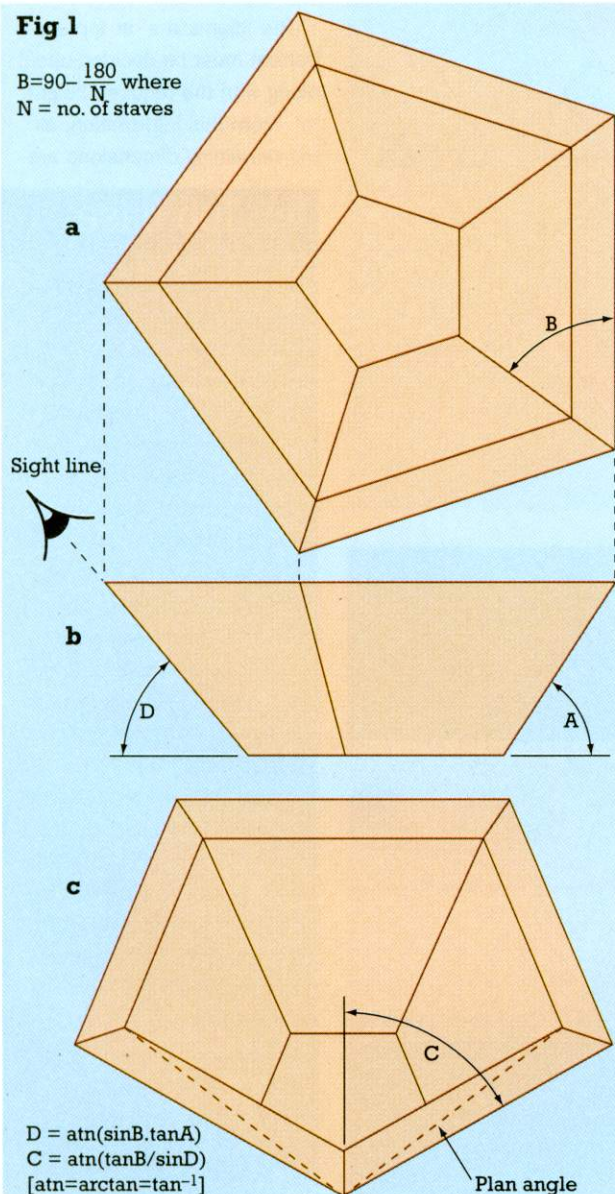
Find the angle

To begin with, the correct mitre angle between staves must be found. This is positively not the angle which appears when looking at the object in plan view, as fig 1 shows. In this drawing, a five-sided figure (pentagon) is shown. The angle shown as 'B' in the plan view (a) is that which would be used if the object were a plain tube (i.e. with parallel staves). The true mitre angle is that which will be seen by sighting along a



Fig 1

$$B = 90 - \frac{180}{N} \text{ where } N = \text{no. of staves}$$



In the event, the technical problems encountered took over completely from the project itself

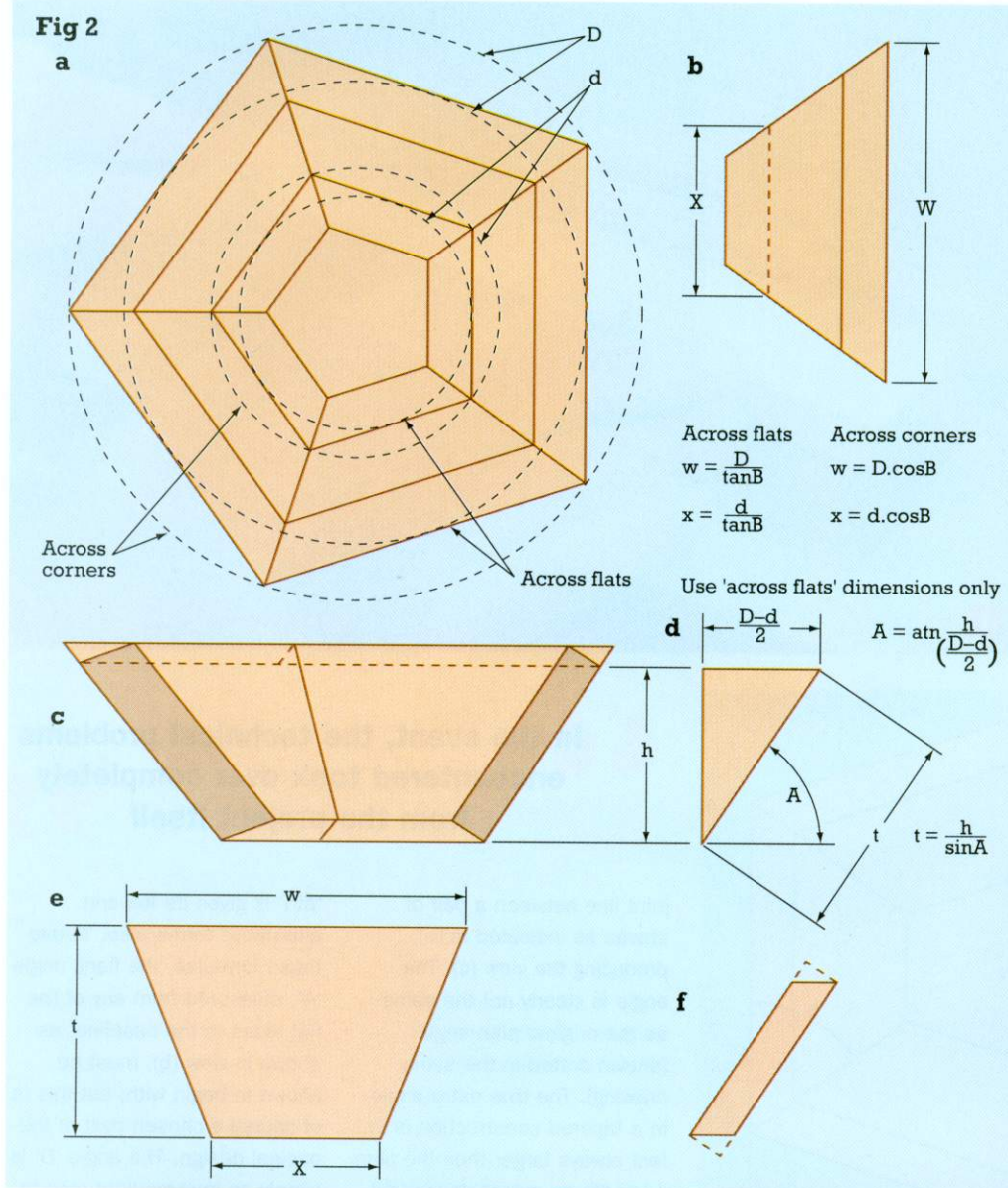
joint line between a pair of staves as indicated in (b), producing the view (c). The angle is clearly not the same as the original plan angle (shown dotted in the same drawing). The true mitre angle in a tapered construction is in fact always larger than the plan angle (to an extent dependent upon the flank angle 'A') and is derived from the two formulae shown alongside.

For the possible benefit of some readers, the function

'atn' is given its full and alternative forms also. To use these formulae, the flank angle 'A', measured from any of the flat sides to the baseline, as shown in view (b), must be known to begin with, but this is of course a chosen part of the original design. The angle 'D' is simply an intermediate step to aid calculation, but is in fact the angle which one of the 'corners' makes with the baseline, and may therefore be useful in some circumstances.



Fig 2



Basic shape

The foregoing explanation tends to put the cart before the horse a little, in that it is necessary to decide upon basic shape and dimensions first (fig 2). Although made up of a number of flat sides, it is convenient to think of the piece as having a 'diameter' - which may be measured across the 'flats' or across 'corners'. The latter method is probably easier when designing the piece, since it involves only the division of the circumference of a circle into the required number of sectors and drawing lines between the divisions, but formulae are given on the drawing for both.

The 'diameters' at top and bottom must be decided upon, along with the required height 'h'. From this information, all the remaining dimensions are

Tub base

It is of course essential to make a base for the tub. This is shown in fig 4, and may actually be made from two or three short boards butt-jointed together, with tenons for extra strength. The dimensions as given should allow the base to sit slightly above the base of the staves. However carefully the staves have been made and assembled, it is somewhat unlikely that the shape of the tub will be perfect (mine weren't). I would suggest therefore that the base is made just a little oversize, and 'fudged' to fit the stave assembly by disc-sanding and trial-fitting. Two or three drainage holes are drilled in the base before fitting. The base may be held in place by nailing through the staves as shown in fig 4(b).

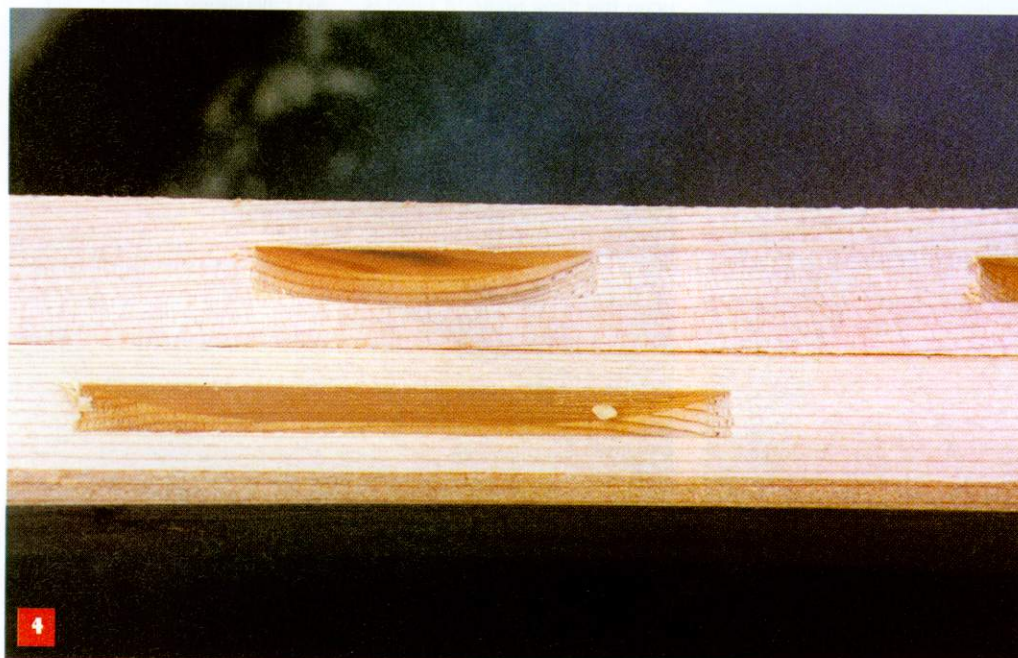
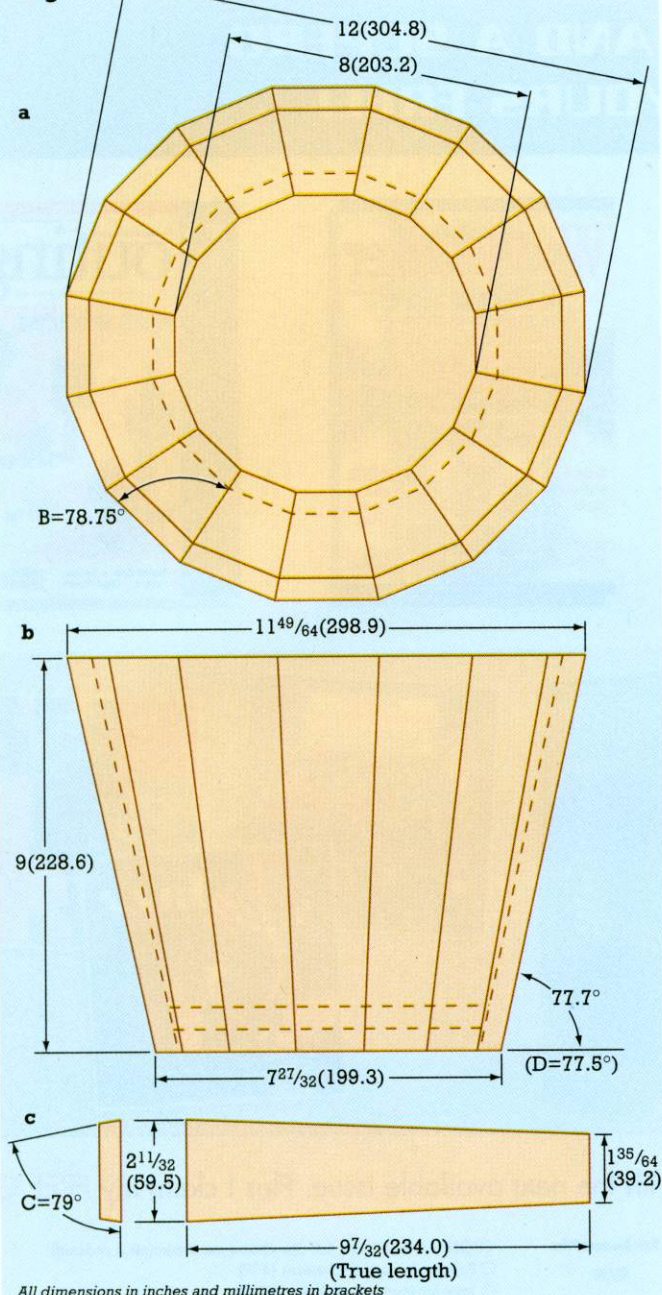


Fig 3



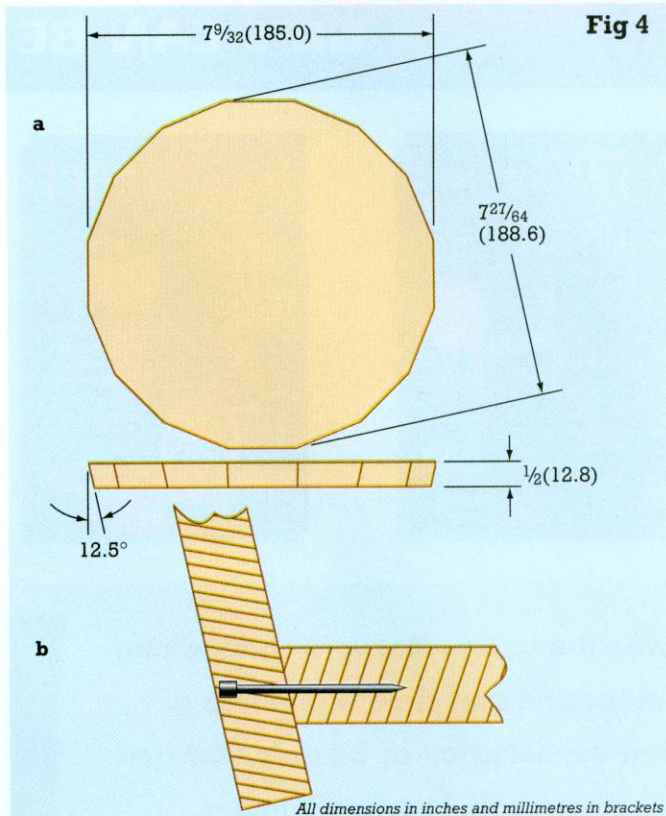
easily calculated with the aid of the formulae shown. Note however, that the angle 'A' must be calculated with respect to the diameters 'across flats', since this is the angle that any one side makes with the baseline. Note also the effect of the taper upon the overall height, as shown by the hatched areas in view (c). In order to make the top and bottom edges of the piece parallel with the baseline, it is necessary to chamfer them as shown in (f). This will have some effect on overall height, and is quite easily dealt with by further calculation but, in the interests of keeping things simple, the effect can be

ignored - although the chamfers should only be applied after the basic stave shape has been accurately machined.

Making the staves

The foregoing information allows any tapered, staved assembly of any dimensions and any number of staves to be accurately specified. The specific project illustrated is now described in detail. All information necessary for the sixteen staves is contained in fig 3. That for the fixed base is given in fig 4. With regard to the staves, I would strongly advise the making of a template, as accurately as possible, and use this to mark out the staves. This

Fig 4



serves two purposes; firstly it assists in making all staves alike, and secondly, it removes any difficulties associated with marking-out on oddly shaped scraps of timber. I would also suggest making at least two spare staves - it is quite easy to make mistakes on the machining procedures to be described.

All stave material should be planed flat on one side and sawn slightly oversize on thickness. The stave profiles should also be machined at his time, but with square edges (i.e. no regard for mitre angles for the moment). It is very important that the staves are now brought accurately to thickness. The actual thickness dimension is of secondary

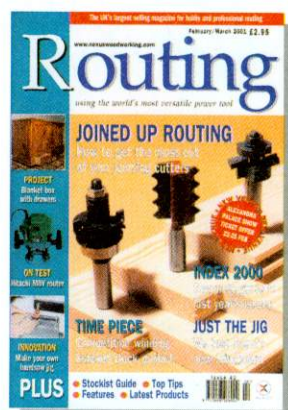
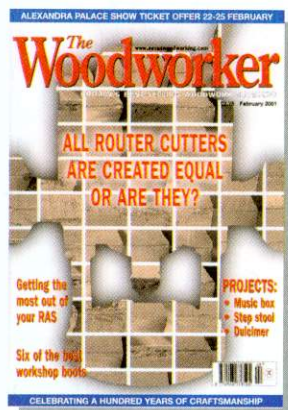
importance, but all staves must be alike in this respect (including the spares). In the absence of thicknessing machinery, I would suggest the method illustrated in pic 1. This uses the router with a ski system and a flat worktop, together with a pair of scraps of timber hot-melt glued to the worktop, and arranged to receive the staves as wedges. In this way, all staves can be machined rapidly and accurately. The fit should be good but, in any case, the router is used such that the cutter tends to drive the stave more firmly into the wedge.

Next issue...Jack shows how to cut the mitres, joint the staves and finish the tubs.



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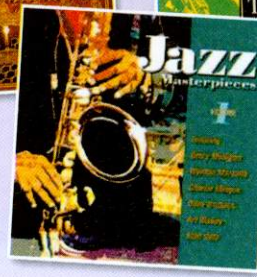
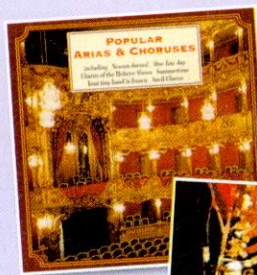
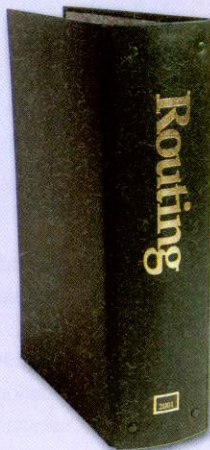


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Trend

Snappy system

Gordon Warr puts Trend's quick release drill system to the test

Just about everybody who has a workshop and tools to go with it will agree that when it comes to power tools, the drill heads the list. Popular types include hammer action, reversing, and those also

Trend bring the power drill and the tooling even closer together and easier to use

designed for driving in screws. Now a drill, however sophisticated, is not worth a penny without the tooling to fit it, and the range of items designed to work with a drill is almost endless. Trend came up with a clever idea a couple of years ago to bring the power drill and the tooling even closer together and easier to use,

which they call the Snappy Quick Release Drill System. Now they have further developed and extended this system.

Quick Chuck

The essence of this system is the Quick Chuck, which fits into any 10mm or 13mm keyed or keyless chuck. The spring loaded sleeve of the Quick Chuck is then drawn back, when any bit or similar attachment which has a 1/4in hexagonal shank can then be slipped in where it will gain a precise location and be positively held when the sleeve is released. Thus with this chuck fitted into that of the drill the change-over from one bit to another is slick and easy.

The assortment of bits and similar equipment which can be fitted in the Quick Chuck is almost endless, and a wide range of these are offered by

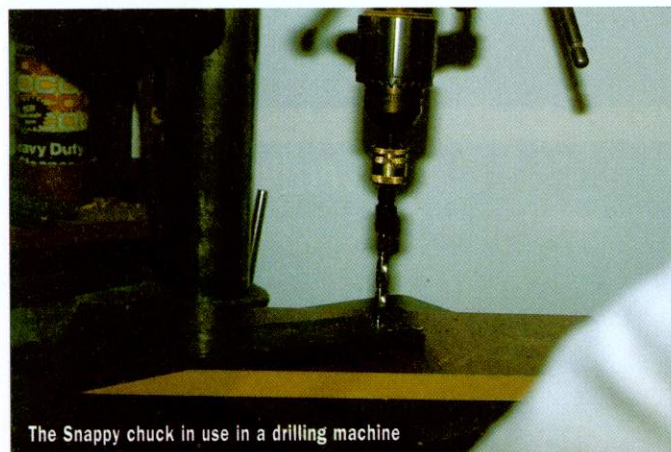


Trend. Two selections are available in their own stout canvas cases, the larger one containing sixty items, the other a smaller selection. Some of the contents are standard items such as the flat bits, masonry bits, and screwdriver bits, others are special or have been adapted. The latter includes a selection of engineer's morse drills each with its own mini chuck and hexagonal shank.

Drill bit guides

Two other specials based on morse drills are three with

adjustable countersinks on their shanks, and two which Trend call drill bit guides. These are designed for drilling pilot holes for screws through the countersunk holes of hinges and other hardware. A spring loaded sleeve with chamfered end sits in the countersinking, then the bit within drills the hole with exact concentricity. Two sizes are included. A wide selection of screwdriver bits, hexagonal headed drivers, and square drive adapters are included, along with a tapered drill. This will drill, or enlarge, holes in



The Snappy chuck in use in a drilling machine

Further information

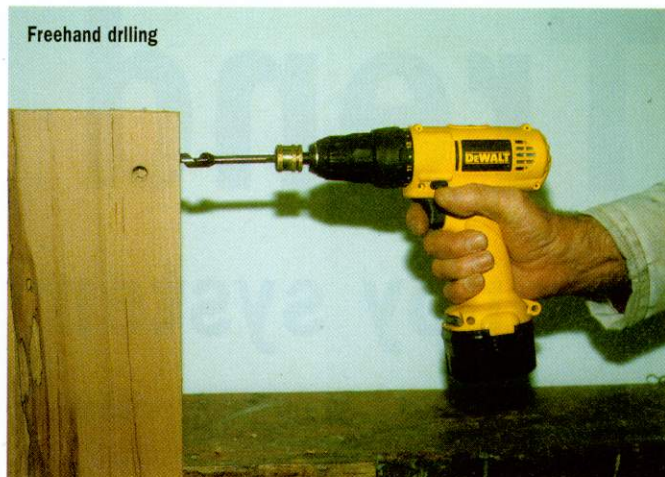
30 piece set (SNAP/TH1/SET)
60 piece set (SNAP/TH2/SET)

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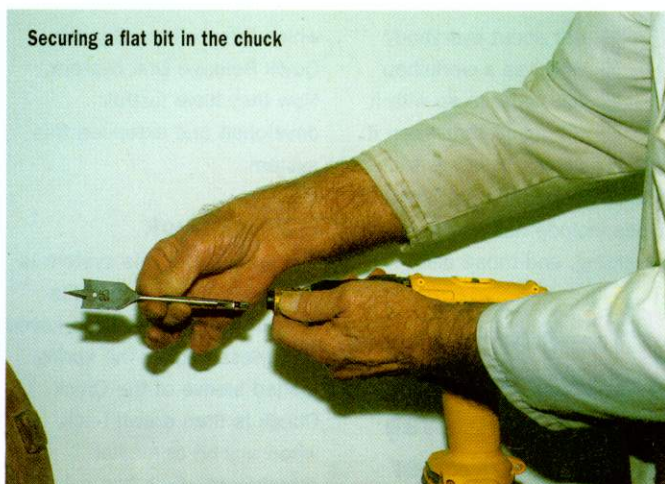
Boring with a twist bit



Freehand drilling



The drill bit guide in use when securing hinges



Securing a flat bit in the chuck

wood, plastic, and metals, from 3 to 7mm.

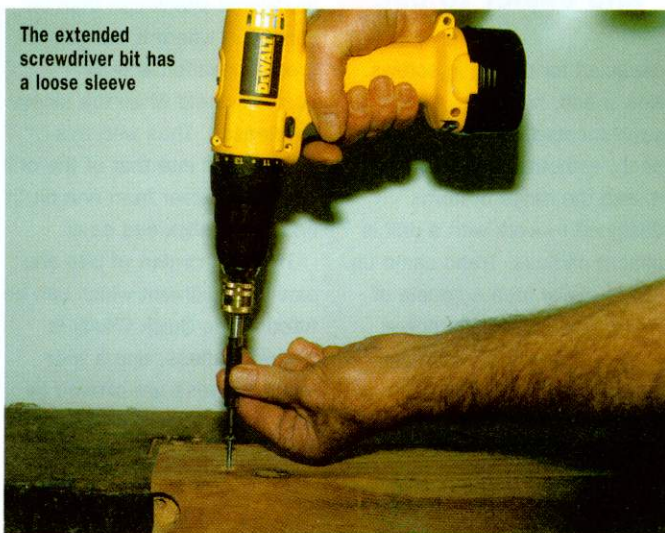
Another clever item is the magnetic bit holder, intended for using when driving in screws. One end fits into the Quick Chuck, with the bits fitting into the other. Not only does this fitting extend the bit fitted by around 70mm, it is designed with a loose sleeve. This can be slid down to cover the head of the screw and thus ensure the bit is retained in place. In addition, the sleeve can be held with one hand while the other holds the drill, thus more control can be provided. This means the risk of the bit skidding off the screw is very much reduced, this is especially important when using cross headed screws.

Wide range

Other items which are new to the Snappy range include

stepped reamers, plug cutters, Forstner bits, depth stops to fit engineer's drills and taps. The latter cover sizes from M3.5 to M10, but must only be used in torque control driver drills. Many of the above items are themselves offered as sets covering a range of sizes.

The good quality of all the products are typical of everything which Trend offer, and the range of applications is very wide. I tried most of the contents of the larger set, and while the real assessment of any product only comes after extended use, I was very satisfied with my trials. A big advantage of buying a set is the canvas case in which they are contained, not only does this offer protection, it holds all the contents in an organised way with each one having its own place. Good value for money for what is included.



The extended screwdriver bit has a loose sleeve

The verdict

A clever idea has been further extended in its usefulness with more 'Snappy' products. While it might be that some of the contents are rarely used while others are in everyday use, we have all been stuck from time to time by not having just the right tool, or right size of tool, for the job in hand. This set will solve many problems for anyone with a power drill.



Timber talk

In the first of a two part series, Gordon Warr unravels the jargon of the timber trade

The English language is considered to be one of the richest in the world, we have a name or saying for everything. As well as the words and expression we all use in everyday life, we have the jargon of the trades and professions. The vocabulary of the farmers and pharmacists, the doctors and the dockers, is well understood by those involved, but might be foreign

to the rest of us.

Much of the language used within a trade or profession has developed over many generations, and the jargon used within the timber industry is no exception. This jargon varies a little from area to area, as it does in the various branches of woodworking which use timber. When we go into a timber yard, we need to know just what we are asking for, and just as important, need to

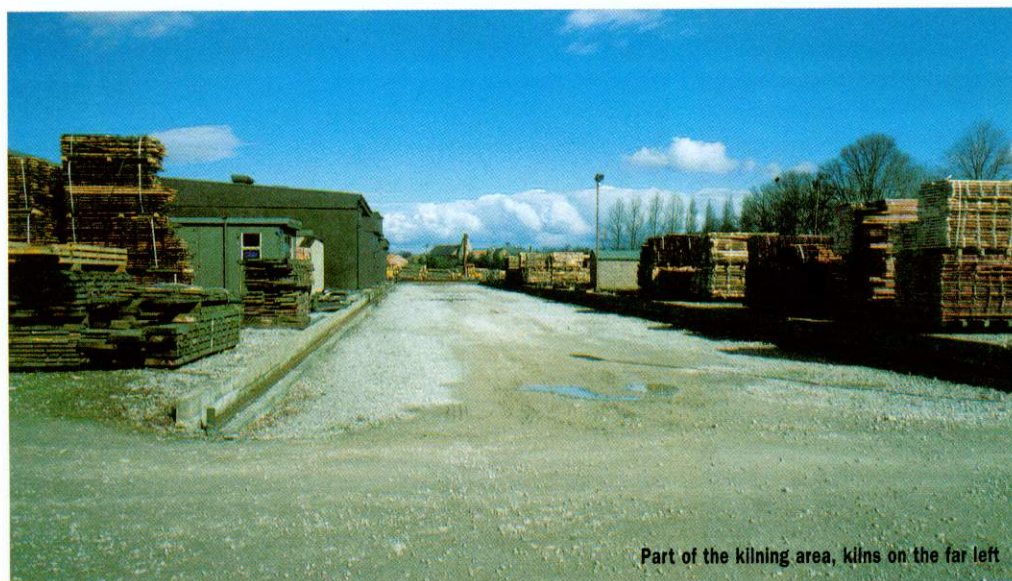
understand what the timber merchant's salesman is talking about when he is simply using long established terms and descriptions. We need to know, for example, the accepted difference between a cup shake and cupping, and is a plank the same as a board?

The following is a short explanation of the main words used in the timber trade, but is by no means a complete glossary. It is also true that

some words may be confined to the hardwood merchants, the softwood dealers, and the specialists such as those who supply the musical instrument maker, the turner, or the boat builder.

Air dried

All trees contain a great deal of sap, the life blood of the tree, and when felled this moisture has to be very substantially reduced for most purposes for which the timber is likely to be used. The tree is sawn up, mostly into boards and planks, and then these are stacked in such a way that there is plenty of ventilation all round, with strips of wood used to separate each 'layer' of planks to facilitate this. This is the traditional method of seasoning wood, as the drying is also known by, but is slow. It takes around one year for each 25mm of thickness of the plank, thus a 75mm plank will take about three years to dry sufficiently for most purposes. Stacks of wood seasoning in this way should



Part of the kilning area, kilns on the far left



Four inch thick planks of native ash

be kept clear of the ground, and covered to keep off the worst of the rain. There is a lower limit to which wood can be dried in this way, air dried timber is often referred to simply as 'AD'.

Annual rings

These are also known as growth rings. Trees which grow in temperate zones usually have marked growth rings, this is because the growth of the tree is mostly on a seasonal basis. Growth is most rapid in the spring, and slower in the summer and autumn. It's the latter rings, narrower than the early spring growth, which are the more pronounced. The 'space' between the darker rings is

Fig 1 Timber 'in stick' for seasoning

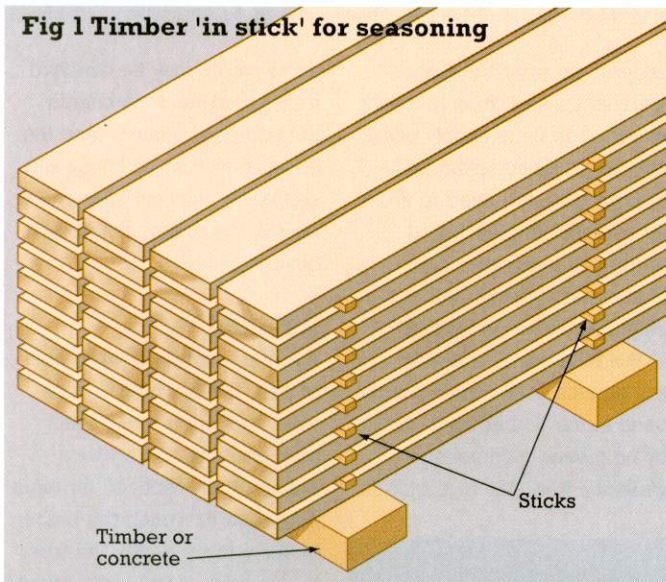
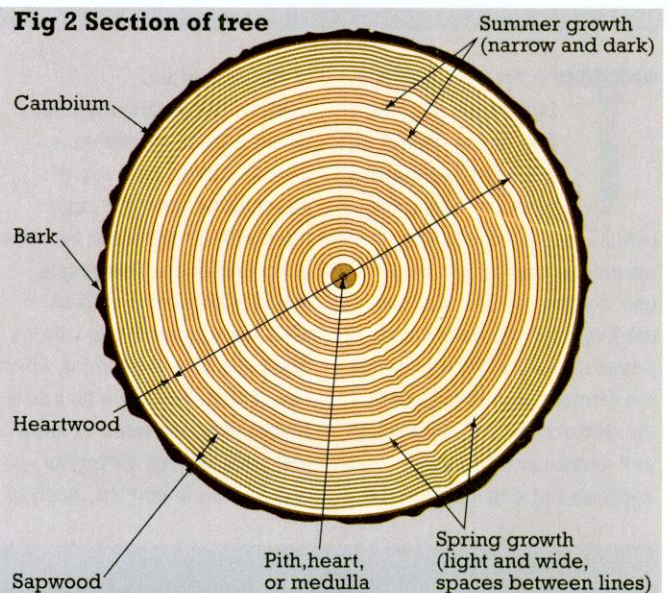


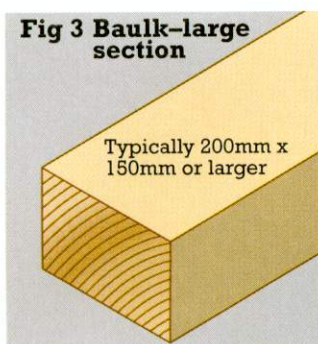
Fig 2 Section of tree



Short oak burr boards in stick



Fig 3 Baulk—large section



the spring growth and is lighter in colour, so to be accurate there are in fact two growth rings each year. By counting the darker rings of the end of a log the age of the tree can be arrived at.

Trees grown in the hotter regions of the world do not follow the same marked seasonal pattern of growth, and thus the rings are often hard to establish. They are sometimes referred to as 'diffuse porous'. Annual rings which are close together are a pointer to wood of better quality than where the rings are well spaced out.

Bark

This is the outer covering to a tree. It protects the cambium layer just beneath.

Baulk

Timber of large section, typically 150 x 150mm or greater, used for heavy constructional work such as timber framed buildings and beams. Often of hardwood, but can also be a softwood.



Fig 4 Bowed

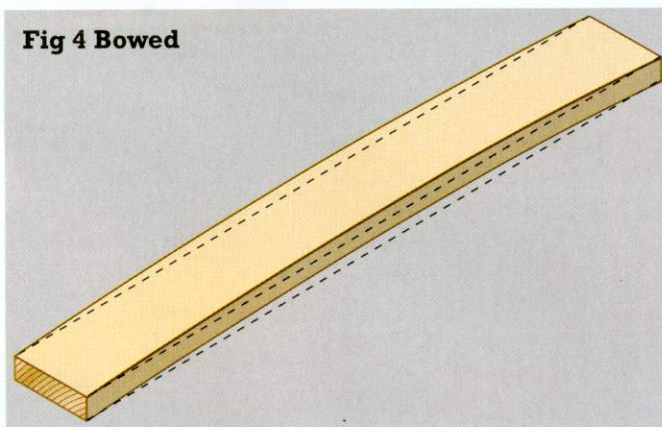
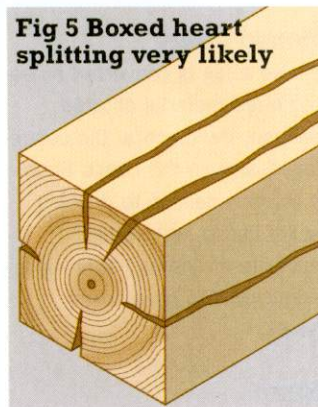


Fig 5 Boxed heart splitting very likely



Billet

This is a short piece of log, typically up to around a metre in length. Billets are popular with woodturners who produce large scale work.

Board

Timber up to about 25mm thick, or even a little more, with the edges parallel is termed a board. It may be sawn and

have rough surfaces, or it may be planed. The planing may be on the two sides, or all four surfaces.

Bole

This term normally relates to hardwoods, and is the trunk of the tree from the root up to the first branch. Thus the timber

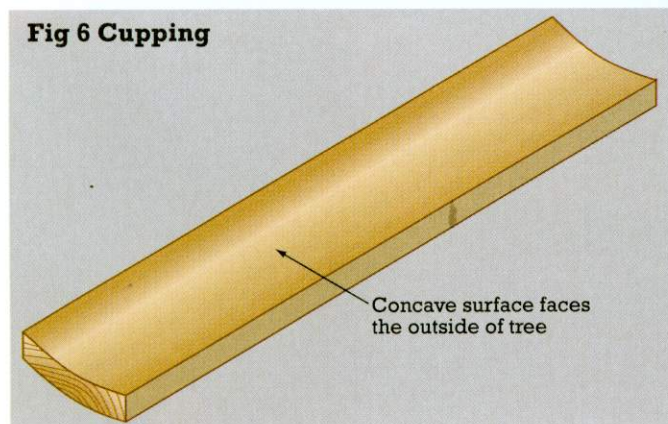
from the bole should be of prime quality, free of knots.

Bowed

A piece of wood distorted in its length is described as bowed.

This is often the result of poor seasoning, or when a thick board or plank is sawn down to produce two thinner boards, as

Fig 6 Cupping





Example of end shakes or splits

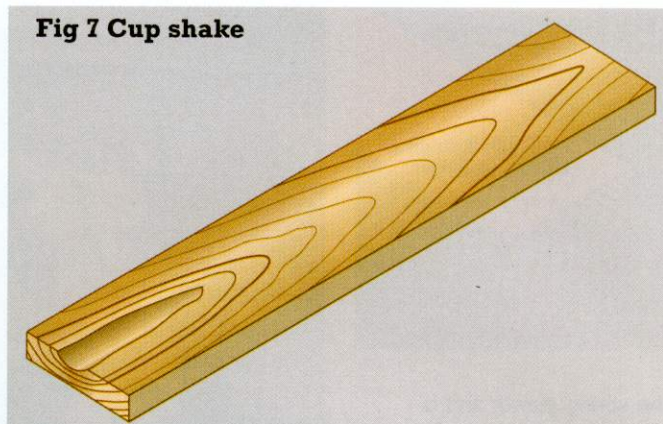


Fig 7 Cup shake

such boards will be out-of-balance regarding the amount of moisture present on one side compared with the other.

Boxed heart

Where a log is converted so as to create material of large section, the piece at the centre might contain the heart. Such a piece is certain to develop splits during seasoning because of unequal shrinkage, and is said to be a boxed heart.

Burrs

These are defects which grow out from the trunk almost like a giant wart, and are sawn off and used for decorative purposes. Although a burr has little strength, the grain is usually wild but very attractive, pitted with small holes, and highly sought after by woodturners especially for bowls. Some logs are so heavily burred that the planks sawn from such logs show the characteristic grain extensively over the whole of the timber.

Cambium

This is the wood-forming layer immediately beneath the bark. The cambium generates new sapwood in the form of 'annual rings' added to the outside of the existing wood.

Carcassing quality

This is timber which is used in its sawn state, and usually in

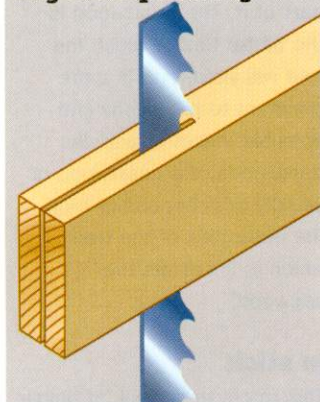


Discs for the woodturner



Billets and discs

Fig 8 Deep sawing



fairly large cross sectional sizes for constructional purposes including flooring and roofing members. Because of this, the quality of the timber can be acceptably lower than softwoods used for joinery work and furniture making. Carcassing quality is suitable for fencing work and garden sheds.

Conversion

This is the initial sawing of the log into boards and planks. Various ways of sawing may be employed to maximise the yield, this also depending on the species and the use to which the timber is likely to be used. Sawing normally takes place using large bandmills, with the commonest method being 'through and through' sawing.

Cube

The English hardwood merchants still measure their timber mostly in imperial units. A cube is a cubic foot, or 12 x 12 x 12in. Hardwoods, especially home grown, are priced 'per cube'.

Cupping

This is also where the wood becomes curved, but this time in its width. As wood dries on seasoning, shrinkage takes place, but this is not uniform in all directions. Cupping is therefore allied to how the timber is sawn from the log,



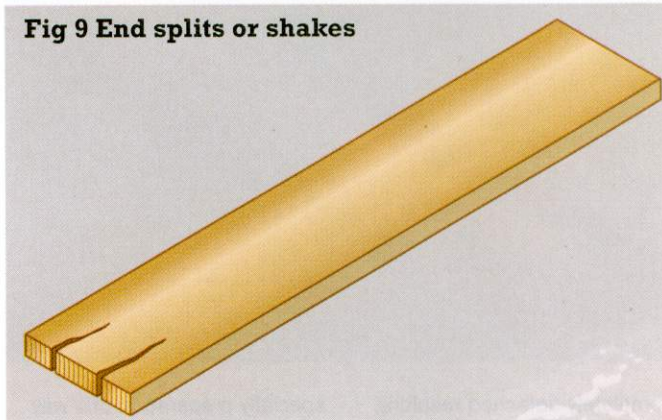
Burrs for the turner

and to subsequent seasoning. Cupping always takes place away from the heart, that is, the concave surface faces which was originally the outside of the tree.

Cup shake

This is a fault in the timber, especially in softwoods, when the growth rings in the wood separate. Sometimes a segment of the wood becomes

Fig 9 End splits or shakes

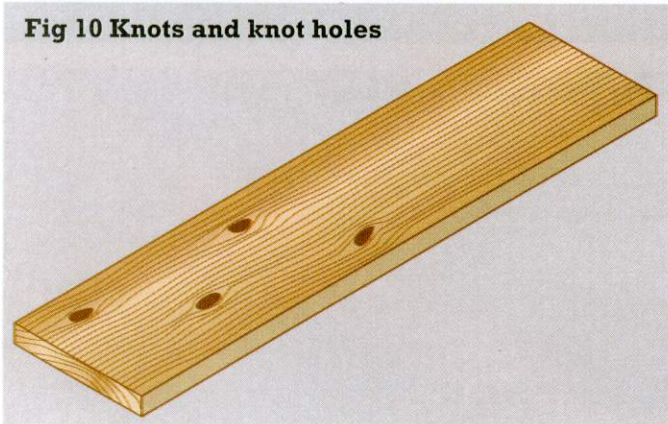


Australian burrs



Slice of oak log showing shrinkage split

Fig 10 Knots and knot holes



completely detached resulting in a shallow groove in the wood.

Deep cutting

This is when a slab of wood as initially converted from the log into planks is further reduced in its thickness by sawing parallel to its wider surfaces.

Density

This is the weight per unit volume, still usually taken to be a cubic foot. As a rule of thumb, the denser the wood then the better the strength, toughness, hardness, durability, and resistance to splitting.

Disc

A circular piece of board or plank. Such pieces are usually

specially prepared in this way for woodturners.

Dressed

This refers to timber which has been planed.

End racking

This is a system of seasoning timber by standing vertically on its end. It applies particularly to sycamore, which is one of the lightest coloured of our native species. If stacked and seasoned in the normal way, the sycamore can become somewhat dirty grey in colour as it dries. It is also possible that 'local' discolouring can take place in the areas where the separating stickers have been used when stacked conventionally.

End shakes

These are splits at the end of the sawn wood, and arise because drying is more rapid at the ends and the consequent shrinkage here prior to the rest of the wood causes the splits. Splits of any kind are also referred to as shakes.

Exotics

There is no exact definition for species referred to as exotic, but they are usually those very rich in colour, dense, and with unusual grain patterns often of a variegated nature. Exotics usually originate in equatorial regions, and are often only available in small sections of pieces. Many exotics are so highly prized that they are sold by weight.

Green

This is timber which is freshly felled, and which therefore contains a lot of sap. It can also mean timber which is only partly seasoned, the moisture content of which is still very high and far too high for the timber to be used for normal purposes.

Hardwood

This is the commercial label given to timber according to its botanical origin, and refers to timber yielded from deciduous, or broad leaved trees. Hardwoods are not necessarily hard, but tend to be both hard and dense, nor do they necessarily have a higher durability rating.

Heart

This is the very centre of the tree, and in many cases is quite soft and is best avoided if possible. It is also known as the pith, or medulla.

Heartwood

This is the part of the tree nearest to the heart, and is

the older and more mature part of it. The heartwood is the better timber which the tree will yield, and is more resistant to rot, decay and possible insect attack. In hardwoods, the heartwood is usually of richer colour than the outer part of the tree which is known as the sapwood.

In stick

This refers to a stack of timber in the process of seasoning. The 'sticks' are the strips of wood, usually around 20 - 25mm thick, which separate the layers of planks and boards.

Joinery quality

The accepted timber for standard joinery is red deal, popularly known as pine although there are several other pines. Redwood trees grow widely in the northern hemisphere, therefore the timber is in widespread use and because of this is graded. Joinery quality is the best grade, normally free, or relatively free, of faults such as knots except small ones, sapwood and with the growth rings reasonably fairly close. It should also be free of staining. 'Blue stain' in coniferous timber is usually confined to the sapwood, and is because of lack of seasoning before shipping. It is a fungal attack, but does not cause decay.

The photos seen in this feature were taken at John Boddy Timber Ltd, of Boroughbridge, North Yorkshire, by kind permission of Frank Boddy, Managing Director.

Next issue...

Gordon Warr continues his explanation of timber trade jargon



JCB POWERPRODUCTS

Reader survey

Reader survey

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Please state why _____

9 Have you seen our website www.getwoodworking.com?

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10 How large is your workshop?

- Less than 12m² ☐ 1
More than 12m² ☐ 2

11 What is your favourite/indispensable router tool/jig?

12 What type(s) of router do you own?

Reader survey

13 Have you ever been disappointed with a tool and if so what is it?

Yes ☐ 1 Make _____
No ☐ 2

14 Roughly how much have you spent on tools and machinery over the last twelve months?

£100 - £299 ☐ 1
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B: _____
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17 Which salary bracket?

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	Interesting	Not Interesting
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Tests	☐ 1	☐ 2
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Techniques	☐ 1	☐ 2
Reader offers	☐ 1	☐ 2
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Tests	☐ 1	☐ 2	☐ 3
Cutters	☐ 1	☐ 2	☐ 3
Techniques	☐ 1	☐ 2	☐ 3
Innovation/jigs	☐ 1	☐ 2	☐ 3
Beginners guides	☐ 1	☐ 2	☐ 3
Router Guide	☐ 1	☐ 2	☐ 3
Market place	☐ 1	☐ 2	☐ 3

23 Which woodworking magazines do you read regularly?

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Routing ☐ 5
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The Router ☐ 7
Fine Woodworking ☐ 8
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24 How have you learnt your routing skill?
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Course tuition ☐ 1
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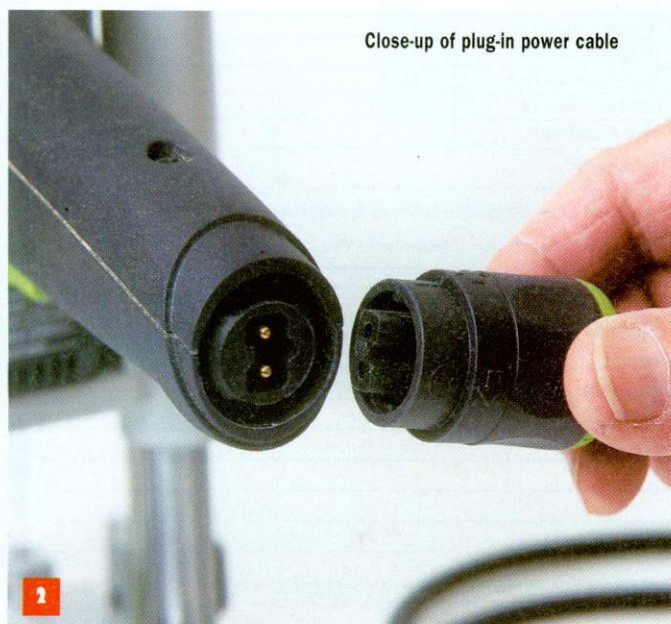


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Festool

OF 1010 EBQ



Close-up of plug-in power cable

The Festool (formerly Festo) OF1010 EBQ router is the latest version of their highly regarded medium power model. I reviewed its predecessor, the OF 1000 EB, in Issue 28 of *Routing*.

Design changes

The differences between the current and previous model are mostly ones of detail, but an important one - which I suspect shows us the shape of things to come - is that the power cable now plugs into the handle of the router. Pic 2 shows the system, which is being implemented across the

range of Festool power tools. In my dream workshop, all power tools would work on a standardised plug-in system and we would have a selection of power leads of different length to use as appropriate.

Other changes include a slight redesign of the body, which gives the router a sleeker more modern look, and the uprating of the power from 900W to 1010W with speeds variable from 10,000 - 23,000rpm. The very efficient electronic braking is retained.

The switch remains as a trigger with locking button and the machine comes with two high quality multi-slit collets of

Close-up of collet plunge



1/4in and 8mm. This router has always been one of the few that allow the collet to plunge through the router base plate and the OF1010 continues this feature.

Pic 3 shows the router fully plunged with the collet protruding through the base plate. This feature is of tremendous value in retrieving lost depth of cut when using the router in a table or with a guide bush and template.

The plunge is locked by means of a twist knob on the front of the motor housing and the trigger-type switch is mounted on the main handle. This arrangement provides for easy left and right-hand use and allows the switch to be locked on for operations such as table routing and certain types of circle cutting.

Fine height adjuster

Depth of cut is set in one of two ways: a plunge rod and scale for quickness, or a micrometer type fine adjuster. No adjuster of the kind that prevents the router rising if the plunge lock knob is inadvertently released is provided and none is available as an accessory. However, it is not difficult to make one for use in a table, or for dovetailing, and pic 4 shows my home-made

adjuster on the table-mounted router.

The side fence is of alloy with non-removable plastic faces and rather short rods. No holes are provided for attaching a false wooden fence to prevent kicking at the beginning and end of an edge cut. A rather elaborate fine adjuster for the fence is available but only as an accessory which reduces the effective length of the fence

rods. An unexpected result of the asymmetrical shape of the router base is that the fence cannot be fitted on the left-hand side of the router for edge moulding, rebating etc. If you try, the aperture in the fence is not centred on the motor spindle and in any case the dust extraction spout is then on the wrong side.

Guide bushes

Surprisingly, no guide bush is supplied as standard although seven are available as accessories, ranging in diameter from 10.8mm to 40mm. Alternatively, the Trend Unibase can be fitted and the

Leigh adapter and guide bush, plus a selection of the Festool bushes available as accessories. The brass cone-shaped device in the picture is a guide bush centring tool - a typical Festool refinement.

Dust extraction

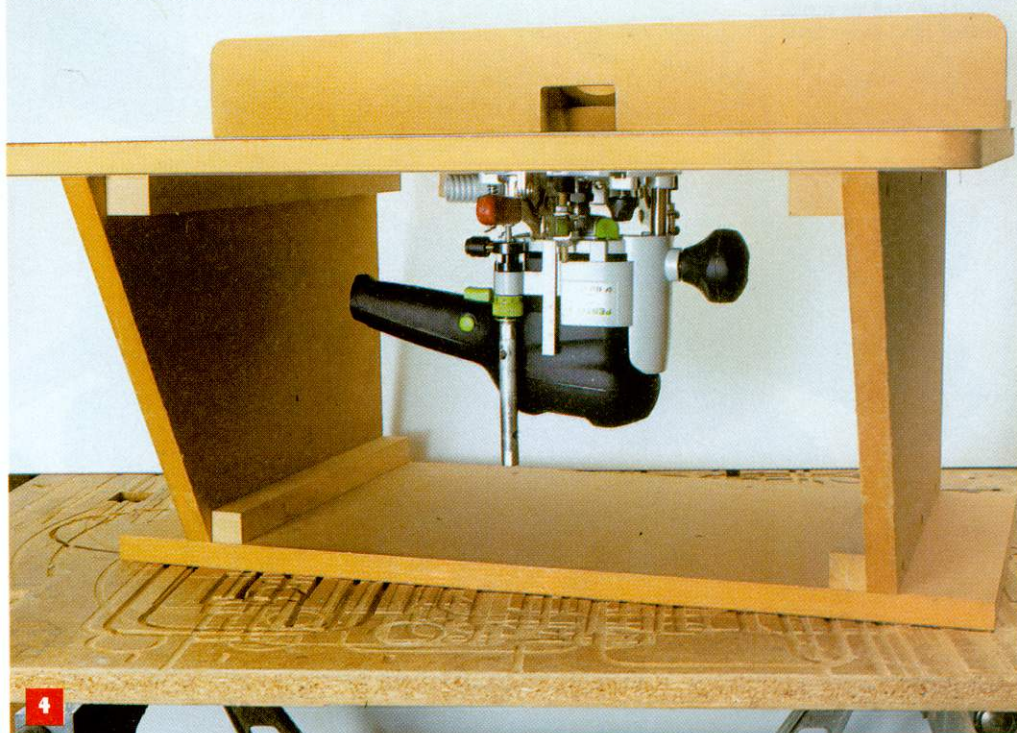
Dust extraction is the most efficient I have come across. The cast alloy base of the router incorporates a dust extractor spout to which the extractor hose is directly connected. A raised plastic collar around the base aperture assists dust collection and clever design of the side fence allows dust extraction when edge-moulding or rebating

Changes include a slight redesign of the body, which gives the router a sleeker more modern look

wide range of Trend guide bushes used. For dovetailing with the Leigh Jig a special adapter plate is available to take a Leigh guide bush. Pic 5 shows the router fitted with the

panels, with the extractor hose attached to the base casting rather than to an add-on spout on the fence. Pic 6 shows the router inverted with the side fence fitted. The transparent

The OF 1010 EBQ mounted in a home-made table. Note home-made fine height adjuster



Router with Leigh jig guide bush fitted and standard guide bushes displayed



5

plastic spout attached to the fence is clearly seen, as is the cast spout in the router base.

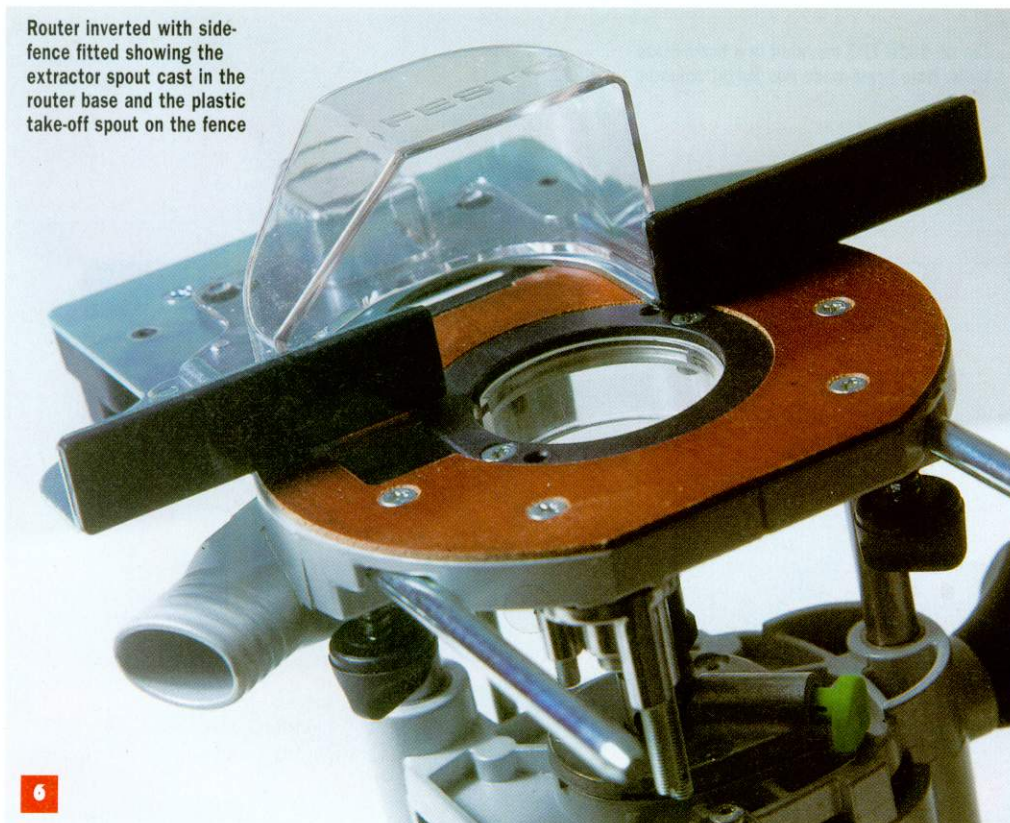
The plastic spout slides off easily when needed. The test machine came

Further information

List price £333.70 inc.VAT without Systainer
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Router inverted with side-fence fitted showing the extractor spout cast in the router base and the plastic take-off spout on the fence



6

The verdict...

The OF 1010 EBQ is a very expensive, very high quality medium powered router which the more you use the more you appreciate. It handled exceptionally well in every test I put it through. Start-up is smooth and the motor runs both smoothly and quietly. The electronic braking feels almost instantaneous and there is absolutely no jolt on stopping. Dust extraction is the best I have experienced, particularly for edge moulding.

The deep plunging collet makes guide bush work very efficient, although I had to borrow bushes from my old OF 900 E since none is included with the standard kit.

Overall I rate this router very highly indeed and recommend it not only as a versatile machine in itself but also for its potential as part of a very sophisticated woodworking system.

packed in the famous Festool 'Systainer' plastic box, itself part of a complete transport and storage system, as shown in the main picture.

Accessories

A wide range of accessories for the OF 1010 EBQ is available from Festool, including a guide-rail system, circle cutting attachments, a dovetail jig, a copying arm and an edge trimming device. In addition, it forms part of the complete 'Basis Plus' modular machining

system and can also be used in the multifunction table MFT 800.

Mounting in a table

This router and its predecessors have always had the reputation of being difficult to mount in a table because of the lack of substantial mounting points in the base, and the unusual shape. The one unit for which it is specifically designed is the Festool 'Basis Plus', a superb but very expensive system which incorporates a very efficient depth-of-cut setter.

There are several effective alternatives however. The first is the Veritas table, which holds the router by means of a patented clamping system. However, you will still need to make a fine adjuster for setting the depth of cut. The second is the Triton system, which is also clamp based. The third is a home-made table with the router held in a recess in the tabletop by means of toggle clamps. I made such a table several years ago for the OF 900 E. The OF 1010 EBQ is equally suitable and in pic 6 is shown mounted in the same table. The home-made fine height adjuster is also clearly visible. Note that the WoodRat Universal PlungeBars, which have transformed the use of a router in a table, are not applicable to this model router because of its unusual design.

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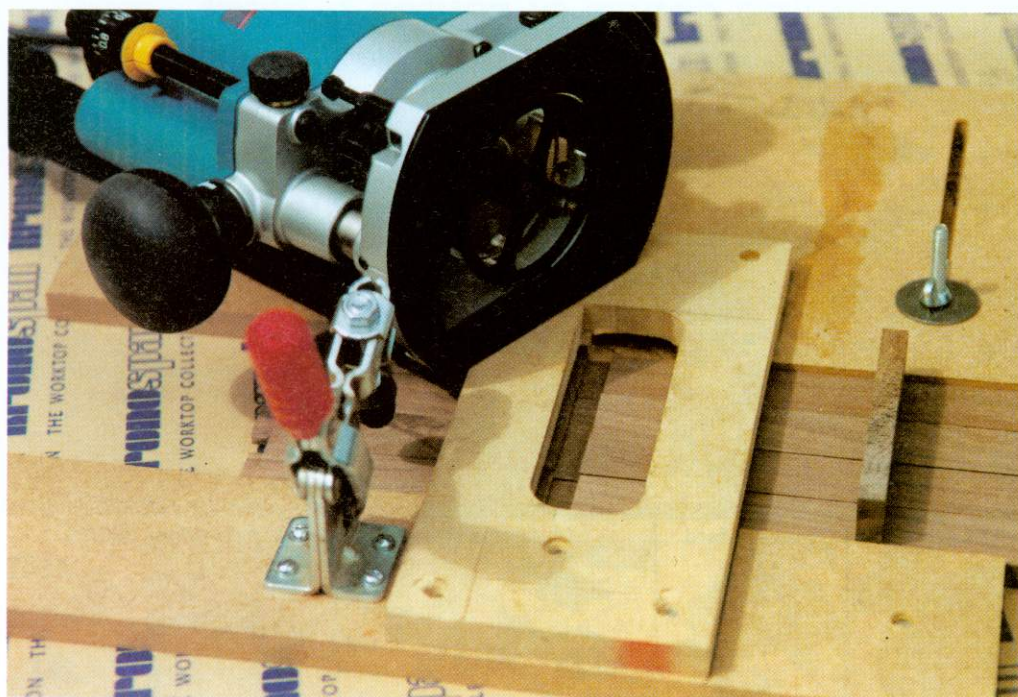
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Peter Dunsmore's latest project is fairly straightforward to make, using a simple home-made jig to cut half-lap joints, and produces a beautiful finished piece

Canterbury

classic

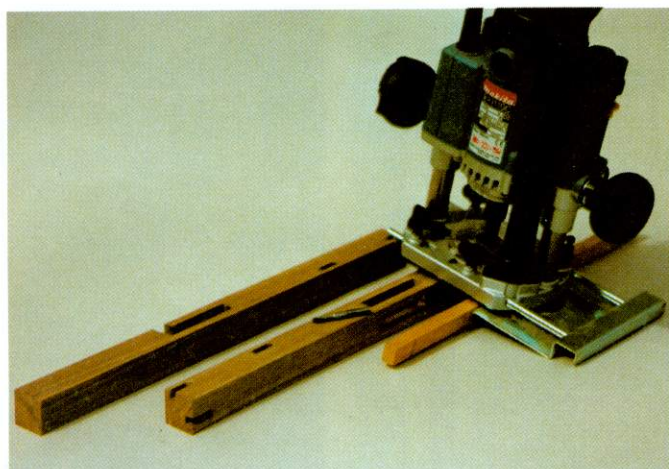


More than one piece of timber can be rebated at once in this jig

The concept of a music Canterbury has been around for many years and was so named because it is thought that the original music rack was made for the Archbishop of Canterbury. There have been many variations of the theme and its design lends itself to modern use as a magazine rack. This style of Canterbury is fairly straightforward to make, but care and patience is required when cutting and fitting the many half-lap joints together and to this end it is worth while making a simple jig with which to cut the joints using the router.

The jig in use

A closer look at the photograph showing the jig in use is fairly self explanatory,



The various mortises are routed out

but it essentially comprises of some 12mm MDF pieces screwed onto an offcut of kitchen worktop or other suitable flat surface. The important aspect is that the slot to guide the guide bush fitted to the router is glued and screwed at right-angles to

the guide piece upon which the toggle clamp is fitted. The support piece of MDF is held in place with wingnuts fitted through slots routed in the MDF. This piece can be slid against the timber to be rebated and clamped down thus preventing the timber



One end panel ready for gluing. Note the groove for the drawer runner

being thrown around when the cutter cuts into the wood.

The toggle clamp keeps the timber held down tightly. When cutting thicker pieces of material the MDF can be packed out using some more timber but it ideally suited to rebating timber up to 12mm thickness. By accurately adjusting the depth of cut using

As can be seen from the drawings the Canterbury comprises of four corner posts held together by two sides and one back piece with the front being made to house the drawer. The back and side pieces are mortise and tenoned into the corner posts. The router is used with a straight edge guide to cut the

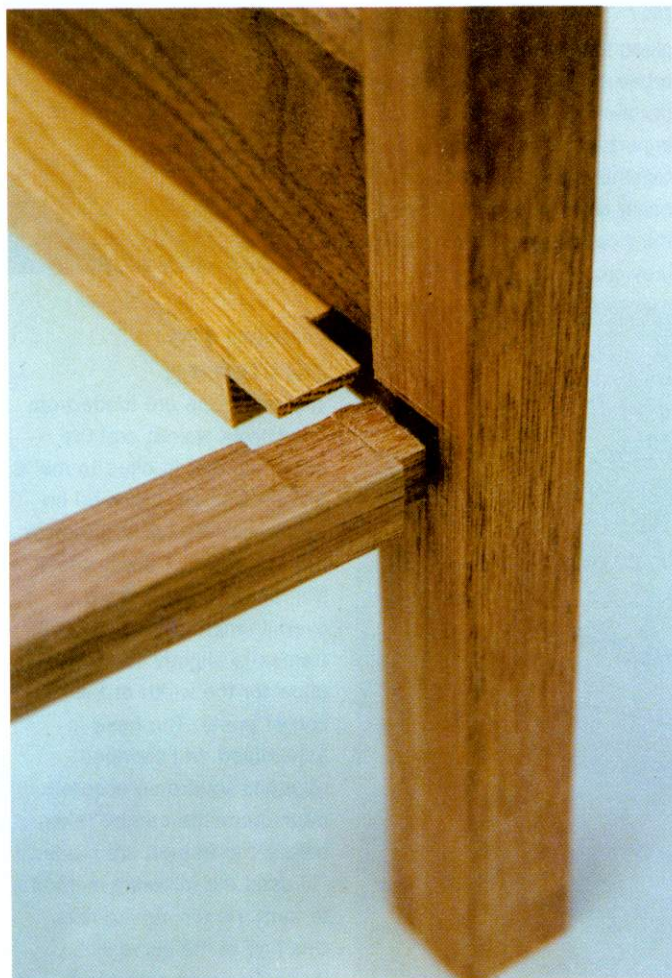
There have been many variations of the theme and its design lends itself to modern use as a magazine rack

the fine height adjuster on the router an accurate fitting half-lap joint is easily made. For wider cuts the toggle clamp is released and the timber can be moved as appropriate. A small point worth mentioning is the fact that I use a shear cutter specifically designed to cut downwards and this eliminates the wood fibre tear out sometimes experienced with a straight cutter.

Making a start

There is a choice of several different hardwood timbers that would be suitable for such a project and these include oak, mahogany or walnut. I used walnut with the drawer made from oak with a veneered front as this seemed to be more in keeping with the original.

mortises in the posts remembering to make handed pairs. To provide more support for the router when cutting the mortises, two posts are clamped next to and level with each other in the bench vice and thus help prevent any tendency for the router to tilt. I also find it easier to make two or three shallow passes rather than one deep one. The tenons at the end of the rails are cut using the above jig adjusted accordingly and then chamfered to provide a greater depth into the corner posts. A rebate is cut into the bottom inside face of each side piece to house the drawer support rails at a later stage. The mortises for the partitioning framework are also cut at this stage taking care that they are



The drawer runner is lapped into the lower front drawer rail

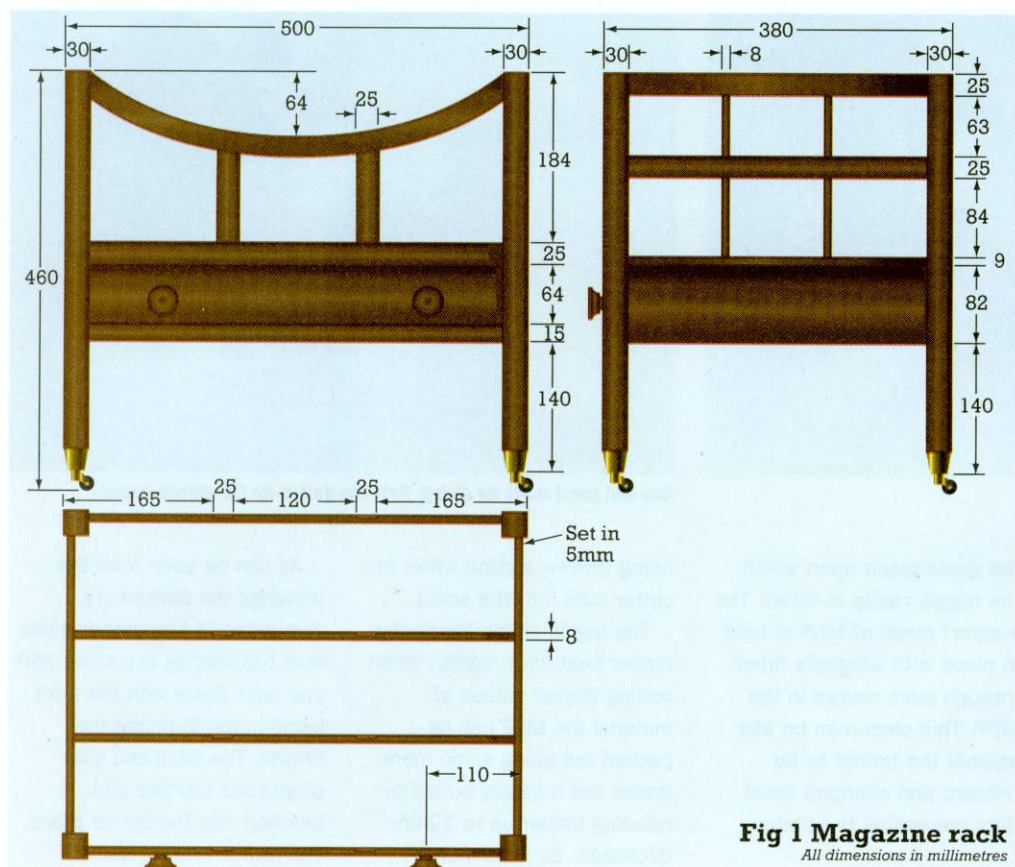


Fig 1 Magazine rack
All dimensions in millimetres

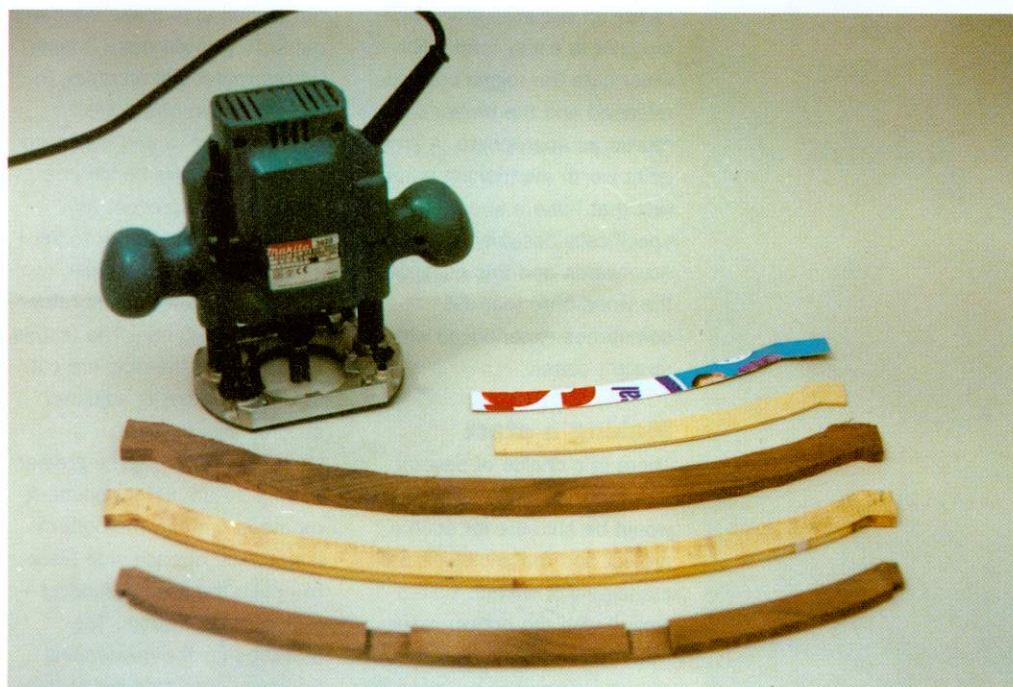
cut at the correct heights and on the correct faces. It is a mistake easily made when it comes to assembly and then finding one set of mortises pointing outwards!

A dry assembly follows and the drawer rails fitted in place.

As can be seen in the pictures the oak drawer rail is lapped into the front lower walnut rail. It takes a little careful work with a sharp chisel but it does provide a neater finish and a smoother run for the drawer to slide on.

The two side frames can be

glued together after cutting the rebates in the upper two side partition support pieces. It is important to check that all goes together squarely and this is easily confirmed by measuring the diagonals and making sure they are of equal distance.



The various stages in making the Canterbury

Useful addresses

Makita (UK) Ltd
Michigan Drive
Tongwell
Milton Keynes
MK15 8JD
Tel: 01908 211678

The Art Veneer Company
Chiswick Avenue Industrial Estate
Mildenhall
Suffolk
IP28 7AY
Tel: 01638 712550

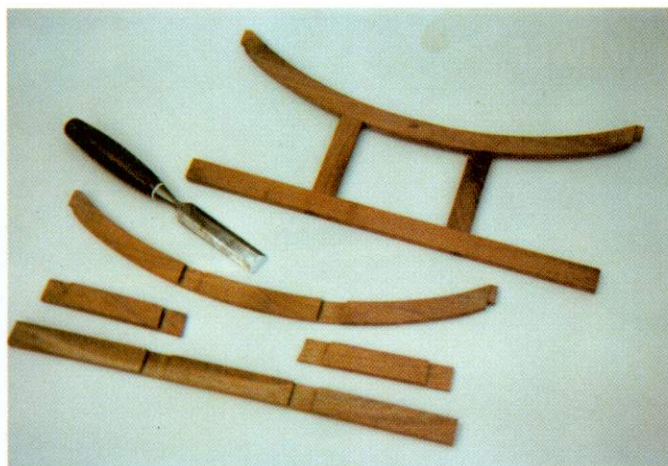
Titman Tip Tools
Valley Road
Clacton-on-Sea
Essex
CO15 4AB
Tel: 01255 220123

Trend Machinery and Cutting Tools
Unit 6
Odhams Trading Estate
Watford
WD2 5TR
Tel: 0800 487363

Making the partitioning

The partitions are made from 8mm thick walnut and the same method is used to make all four frames. It should be noted, however, that although the curvature of the top four frames are identical the overall length of the two outer frames is slightly shorter to allow for the width of the corner posts. The base is assembled and clamped together square so accurate measurements can be taken before the frames are made.

I used the following method to form the top curved rails. One half of the curve was drawn freehand onto some card and this used as a



Careful marking out is required for a good fit



The rebates for the two side frames to slide into are seen



This project is almost all half-lap joints and rebates

template to make a half curve onto some thin plywood. This in turn is used to make a full length plywood template from 6mm plywood. By carefully

positioning the template the shape is curved equally on each side. The completed plywood template is used to draw onto the walnut timber and this in turn can be cut just on the outside of the pencil line with a fretsaw. Using either double-sided tape or by pinning the plywood onto the walnut with veneer pins, the exact profile can be shaped using a bearing guided cutter with the router set in a small router table. It goes without saying that great care should be taken at this stage but the end result is four identical curves. If the plywood was pinned in place the small hole is filled and when polished is not noticed.

Finishing stages

With the floor out of the carcase it is easy to fit the drawer guides and drawer stops. The bottom of each leg is shaped with a gents saw and a sharp chisel so they insert into the brass castors.

It is far easier to polish the Canterbury while it is in various separate components. To darken the walnut the various parts have a 50/50 mix of turps and raw linseed oil brushed on and left to dry for at least a couple of days. When fully dry three coats of button polish are brushed on, debribbing between coats with 600 grade wet and dry paper. When dry the floor is glued in place and the centre frames slid in place. Small screws are used through the underside of the floor and into the bottom of the frame. Any small pinholes are filled with a dark stopping. A polishing rubber is then used to body up the finish on the outside faces of the posts and frames and on the top edges of the partitions. When dry, a wax finish is applied and buffed to a nice lustre before fitting the drawer front brass handles.

Making the drawer

The drawer is conventional in construction using lapped dovetails to the front and a 4mm plywood base let into grooves routed in the drawer sides, front and back. The drawer front was made from walnut so the dark pins contrasted nicely with the light oak coloured drawer sides. I used, for the first time, a dovetail jig and after the initial setting up was very pleased with the speed and accuracy with which the drawer was made. The drawer front was veneered with reverse matched burr walnut and crossbanded in walnut with a sycamore stringing to separate the two veneers.



Smooth the burr with a fine finish abrasive paper



A dovetail jig is used in the drawer construction

The four frames are completed by carefully cutting the half-lap joints and assembling the frames. Accuracy and patience is required when marking out

but the end result is worthwhile.

The front and rear frames have tenons formed on the ends to fit into the mortises

previously cut into the corner posts and when satisfied with the fit the construction so far can be glued together again checking that all is square.

Fitting the base

The base is 6mm plywood with the two outer faces lipped with some solid walnut. This is then veneered with walnut veneer. To fit

this into the Canterbury requires the four corners to be notched to fit around the posts and two of the notches to be cut slightly longer than required so the floor does not foul the end frame support pieces. It is a little difficult to explain but you will see what I mean when it comes to fitting the floor in place. It is not glued in place at this stage but just held in place.



The finished Canterbury with drawer open



The drawer stop and runner can be seen here



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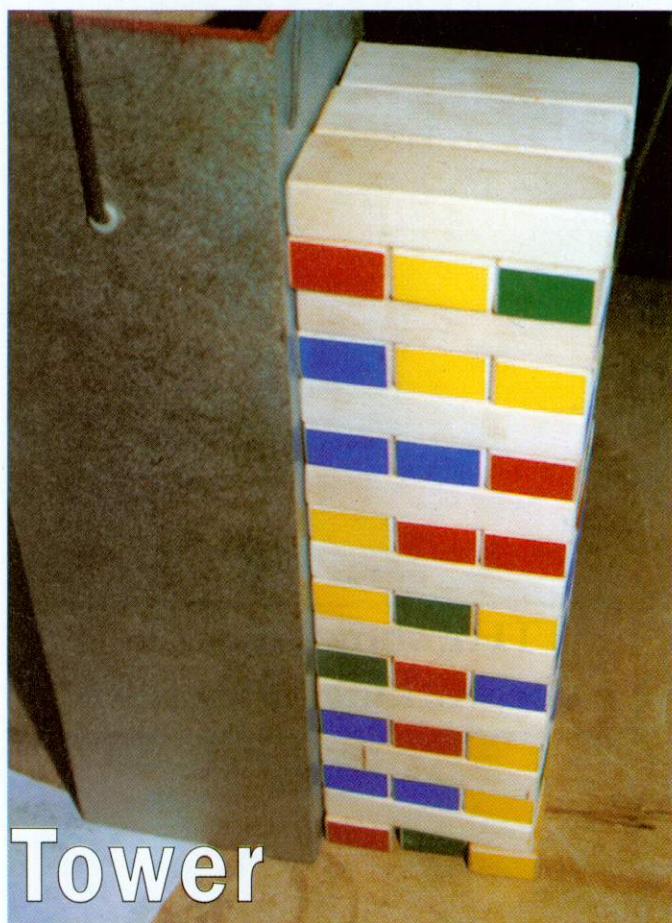
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Tower blocks

Our young grandson was due to join us for a few days, so I thought I'd make something to give him the opportunity to explore his mental capabilities at six years of age. By Ray Everest

The resulting Tower Block has to do more than just build and 'fall down', so it is made to a fairly precise size, the blocks each being 400 x 33 x 20mm (the 33mm should be 33.3mm but that degree of accuracy was not necessary). The measurements were such that three blocks laying flat, or five blocks on edge would fill the length (100mm) as seen in the main picture.

Our grandson soon learned that by placing the container against the blocks and tapping them into place and by repeating this on an adjacent side, the blocks are accurately aligned so that the container can easily slip over the blocks for storage when play is finished.

The blocks are made from maple, it being hard, stable and producing a good finish. The box container is made from MDF.

Step by step

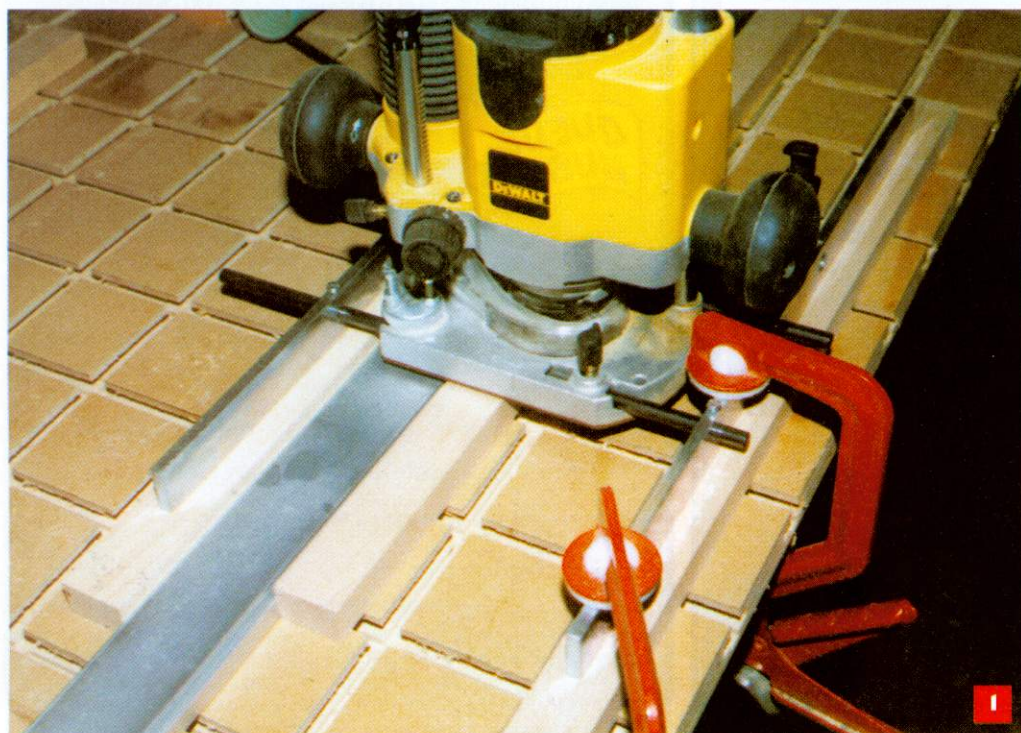
1 Due to illness, having reduced my workshop heavy machinery (planer thicknesser etc.) all the preparation is carried out with the available tools I now have. The maple off-cuts run through the bandsaw to give the width (33mm) allowing a small oversize for sanding.

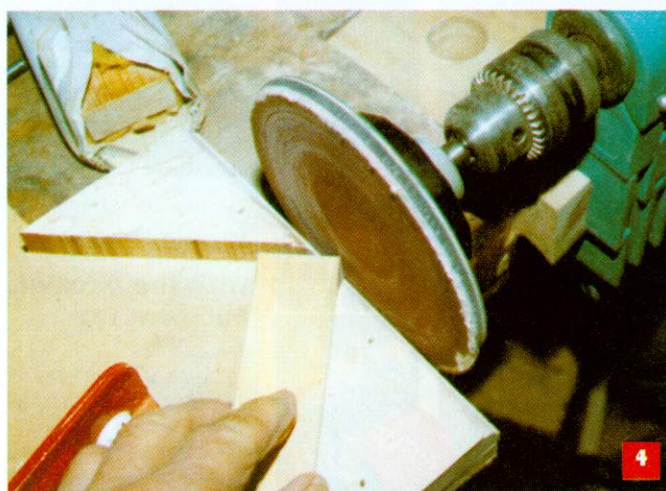
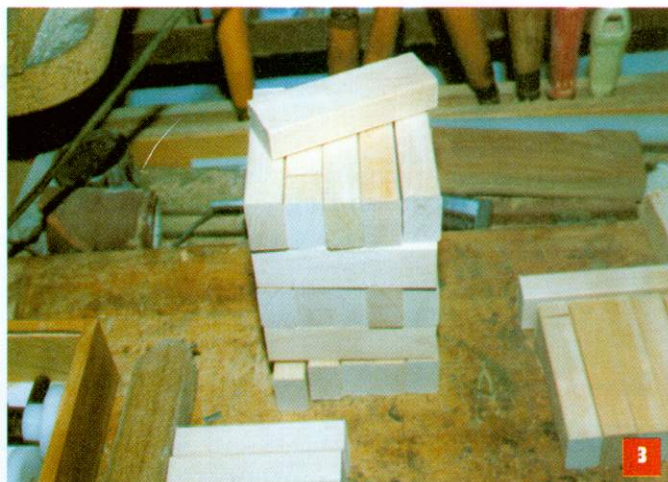
2 The offcuts chosen for use were as near as possible to the thickness required, not having a thicknesser, my DeWalt 621K router was rigged as shown in pic 1 with a guide bar and skids fixed temporarily with clamps, and with large bottoming cutter fitted, the fine adjuster was advanced to plane the strips to the required thickness. This finish requires only a light sanding.

3 The strips are then passed over a 120 grit finisher belt, pic 2. They are then ready for cutting to length on the bandsaw. The stack of 100mm cut lengths begins to grow, pic 3.

4 Having set up a power drill (with a 5in sanding disc attached), horizontally, on a bench clamp, and a 45in sanding table butted up to the disc, the blocks are end

“The blocks are made from maple, it being hard, stable and producing a good finish”





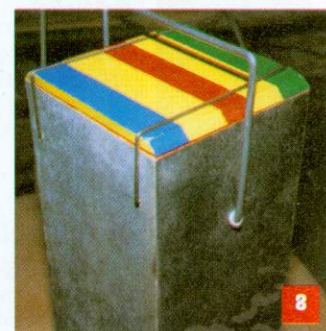
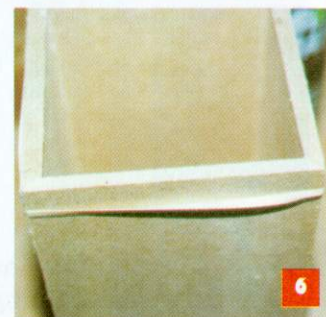
sanded followed by sanding a bevel on all eight end edges as seen in pic 4.

5 The blocks are then up ended in conveniently sized groups and held together by a strong elastic band enabling them to be painted with a suitable paint (two coats are needed). The four colours are randomly painted so that there are a variety of colour

combinations on each end.

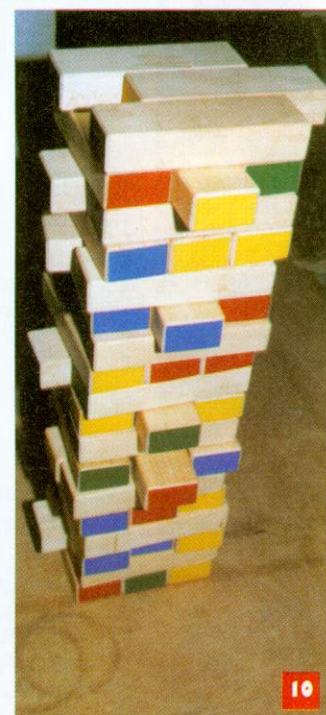
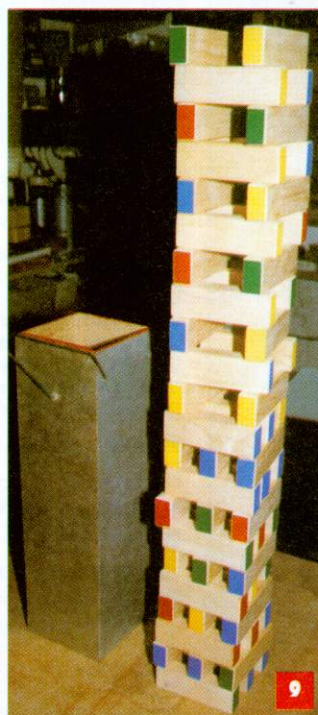
6 At this stage the blocks are returned to the sander to destroy the slight over painting, but this should have been avoided by painting first, followed by the bevelling.

Pic 5 shows the horizontally laid blocks close to the container, blocks on edge partially pushed out of the stack.



Making the box

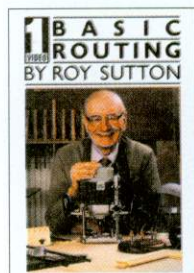
The box is made from 8mm MDF, the bandsaw being set to cut 103mm plus the thickness of the MDF and set to a 45-degree angle to produce a simple mitre, the four pieces being glued with Locktite and held with elastic bands whilst setting, pic 6 shows the procedure. A 103 x 103mm square is cut to glue in the bottom, and a suitable lid manufactured (pic 7) with some foam and a spacer to take the odd block as shown. Springy steel is cut and bent to form the retainers for the lid. Masking tape is used to paint the coloured stripes on the lid and 3mm rod is used to make the carrying handle. Pics 9 and 10 show the blocks in use.





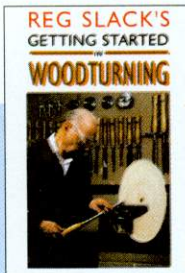
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Nexus and Fine Grain Productions have teamed up to bring you these great Teach Yourself Woodwork video offers



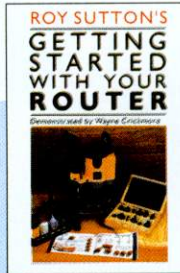
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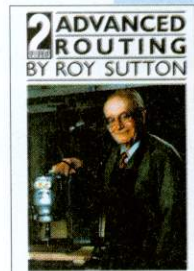
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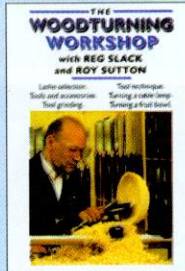
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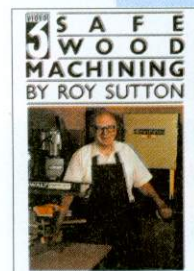
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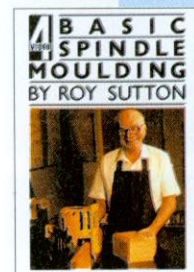
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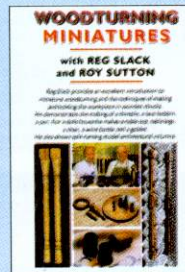
Getting started with the circular and bandsaw £11.99

This is an excellent video for those who are new to these machines and a useful reference for the more experienced woodworker.



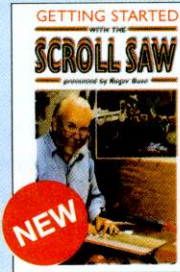
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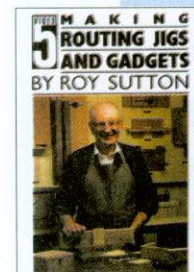
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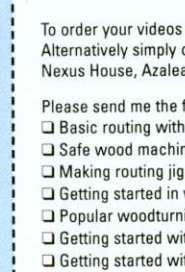
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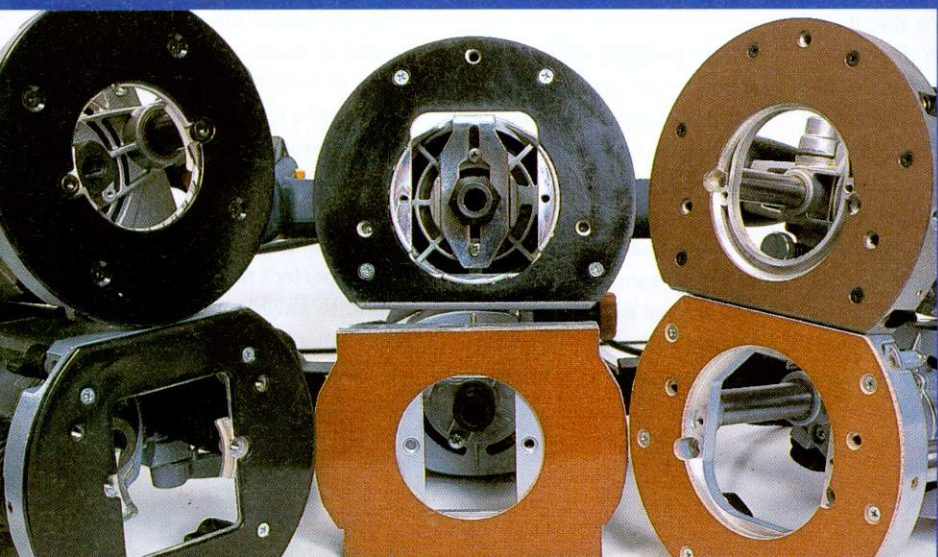
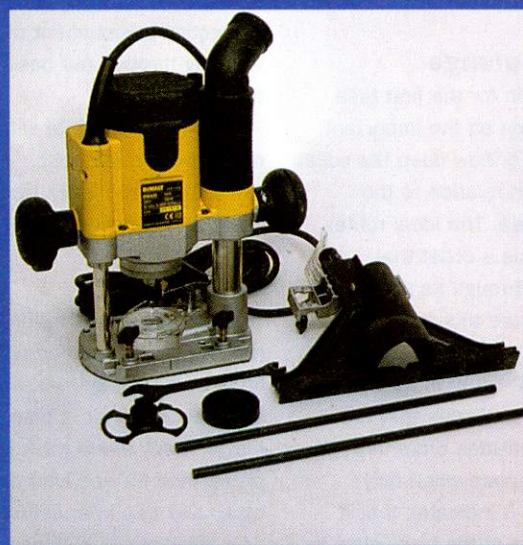
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Routing

Router Guide



The New Routing Router Guide

With each issue of Routing we feature our new improved 'Router Guide'. Our aim is to give more information of the kind that will help the potential purchaser of a new router. To this end, additional information not usually found in manufacturers' specifications has been added to the familiar details regarding power, collet size etc.

To provide this extended data for all routers is a major exercise and we are constantly gathering more information. Updating and extending the specifications to include every current router will be an on-going task, but we felt that it was more useful to provide slightly incomplete data as soon as possible rather than wait until all makes and models have been given the full treatment. A number of the new items of information are noteworthy:

Switch

We state the type of switch provided eg simple slider, 'dead man's handle' etc. This is of importance, for example, if the router is to be used inverted in a table since some switches have to be clipped or strapped 'ON' while others don't.

Collets

Collet types vary considerably. We say what type and size of collet comes as standard and what range of additional collets



or, less satisfactory, what range of reducing sleeves is available.

Collet plunge

We include for the first time information on the important question of how deep the collet plunges in relation to the router base. The ideal router would have a collet that plunged through its base plate. We measure this feature on all routers and show it as a 'plus' or 'minus' figure in millimetres. Thus, +5 indicates that the collet protrudes 5mm through the base plate when fully plunged, -3 indicates that it falls short of the base plate by 3mm and 0 means that it plunges flush with the base plate. This information will help narrow the choice of router for use with a router table or for guide-bush and template work, where thickness of the table insert and template reduce the effective depth of cut.

Visibility

Most manufacturers specify the size of the cutter aperture

in the base plate aperture but, in addition, we have added a subjective assessment of visibility through the base plate.

Note, however, that with many models the dust extractor spout, when fitted, drastically reduces visibility.

Plunge lock

We state the type of plunge lock for each router eg twist knob or clamping lever, and whether the latter is plastic or metal. Many users have a preference for one kind or the other and this information is now available at a glance.

Fine height adjuster

A fine height adjuster is of great benefit in table work and in precise depth setting for hand-held routing, eg dovetailing.

Some routers have a built-in adjuster, some include one as an optional extra, and others make no provision at all. We show the position for each router.

Guide bushes

Most routers come with one guide bush as standard. We show for each router what size the standard bush is and what additional sizes are available. It should be noted, however, that any router which does not provide its own range of guide bushes can usually be adapted to use Trend guide bushes with the aid of an adapter plate which can be bought or made.

Table fixing points

Sooner or later most routers, especially the heavy duty models, are required to be used in a table. Not all routers have effective mounting points in their base plates.

This makes table mounting difficult, or restricts the choice to tables that have clamping systems to hold the router. At the other extreme, several models have the standard Elu/DeWalt fixing points, which give compatibility with a number of table insert plates and other accessories. We specify the fixing points for each router.

At the end of the day, the choice of router still comes down to a particular individual's own requirements and preferences. Different people will give different weight to various features.

There is still no such thing as the perfect router, but our aim is to provide more information of the kind that will help the individual to make an informed choice.

a – b



Make	AEG	Atlas Copco	Atlas Copco	Black and Decker	Black and Decker
Model	OFS 710	OFSE 1000	OFSE 2000E	KW 800	KW800 EK
Serial number		4000 3615 91	0164K 1998		
Input Watts	710	1010	2000	800	800
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts	No	Yes	Yes	No	No
Fixed RPM	25,000	No	No	27,000	No
Variable RPM	No	8,000 - 25,000	8,000 - 24,000	No	8,000 - 30,000
Spindle lock	Yes	Yes	Yes	Yes	Button
Switch		Toggle	Toggle		Slider
Collet type		Multi-slit	Multi-slitEC		Simple slit cone
Collet standard	1/4in	1/4in	1/2in	6, 8mm, 1/4in	6, 8mm, 1/4in
Collets available	6mm, 8mm	8mm			
Collet plunge		+ 8mm	0		- 2mm
Base aperture		41mm	60mm		40mm
Visibility		Good	Good		Good
Plunge lock		Plastic lever RH	Lever		Plastic lever RH
Side fence		Plastic faced. Fine adj on fence rod	Fine adj. Fixed short rods, cheeks		Bolt-on rods, roller guide & trammel pt
Fine height adj		No	No		No
Plunge limiter			No		
Guide bush Flange					
Guide bush standard		None	30mm		16mm
Guide bush available		Trend 96 type	27, 40mm		
Dust extraction	Yes	Trans. Spout held on with fence rods	Trans. Screw-on spout	Yes	Clear plastic spout
Take off diameter					
Table fix points		Only guide bush holes. 5mm tapped	3 x 6mm tapped holes. Not quite Elu		Plain 5mm guide bush holes
Maker's accessories					
Weight (kg)	2.5	2.7	6.4	3	3
List price (Incl. VAT)	257	355	478	79.99	99.99
Package available					
Storage			Kit case		
Comments		An Elu clone with slightly longer base. Takes most Elu96 accessories	Almost identical to Freud, but not quite		

Where to Buy Routers

AEG

Atlas Copco Tools Limited,
Swallowdale Lane,
Hemel Hempstead,
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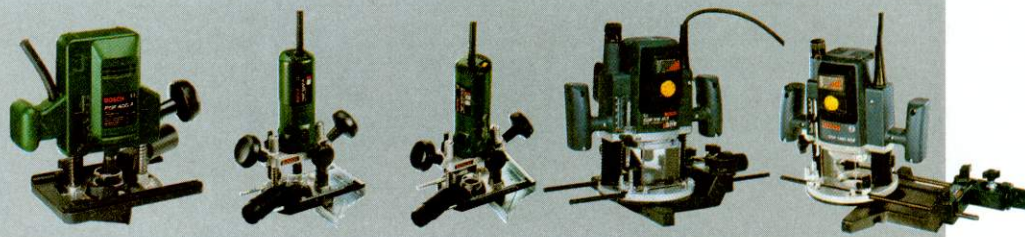
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b -



Make	Bosch	Bosch	Bosch	Bosch	Bosch
Model	POF 400A	POF 500A	POF 600 ACE	GOF 900 ACE	GOF 1300 ACE
Serial number	603261142			4640121	5650891
Input Watts	400	400	600	900	1300
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts	No	No	No	Yes	Yes
Fixed RPM	27,000	27,000	No	No	No
Variable RPM	No	No	12,000 - 27,000	12,000 - 26,000	8,000 - 22,000
Spindle lock	Tommy bar	No	No	Yes	Yes
Switch	Slider			DMH	DMH
Collet type	Simple slit cone			Multi-slit	Multi-slit
Collet standard	1/4in	1/4in	1/4in	1/4in	1/4in
Collets available	6, 8mm	8mm	8mm	8mm	1/2, 3/8, 6, 8, 12mm
Collet plunge	- 2mm			- 8mm	- 2mm
Base aperture	42mm			46mm	46mm
Visibility	Poor			Poor	Poor
Plunge lock	Twist knob			Spring lever	Spring lever
Side fence	Crude plastic. no rods			Rigid plastic. Fine adjuster	Rigid plastic. Fine adjuster
Fine height adj				Built-in	Built-in
Plunge limiter					
Guide bush Flange					
Guide bush standard	12mm plastic			17mm	17mm
Guide bush available				13, 24, 27, 30mm	13, 24, 27, 30mm
Dust extraction	Screw-in spout		Yes	Black screw-on spout	Black screw-on spout
Take off diameter					
Table fix points	4 x 6mm tapped holes			3 x 6mm plain holes	3 x 6mm plain holes
Maker's accessories	Router table, dovetail jig	Router table, dovetail jig	Router table, dovetail jig	Table, dovetail jig, guide rail	Table, dovetail jig, guide rail
Weight (kg)	1.8	2.3	2.3	3.5	4.8
List price (Incl. VAT)	123	131	185	290	387
Package available					
Storage					
Comments	Too low powered for any accessories. Can make a fine adj.				

b – d



Make	Bosch	Bosch	DeWalt	DeWalt	DeWalt
Model	GOF 1600 A	GOF 1700 ACE	DW 613	DW 615	DW 670
Serial number		5660054	1037360		
Input Watts	1600	1700	800	900	600
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts	Yes	Yes	Yes		Yes
Fixed RPM	25,000	No	27,000	No	30,000
Variable RPM	No	8,000 - 23,000	No	8,000 - 24,000	No
Spindle lock	Yes	Yes	Button	Button	Yes
Switch	DMH	DMH	Slider	Slider	
Collet type		Multit-slit	Multi-slit	Multi-slit	
Collet standard	1/4, 1/2in	1/4, 1/2in	1/4in	1/4in	6, 8mm, 1/4in
Collets available	6, 8, 12mm, 3/8in		6, 8mm	6, 8mm	
Collet plunge		+ 11mm	+ 6mm	+ 6mm	
Base aperture		67mm	40mm	40mm	
Visibility		Excellent	Good	Good	
Plunge lock		Spring lever	Twist knob RH	Twist knob RH	
Side fence		Rigid plastic. Fine adjuster	Non-adj. Plastic cheeks.	Non-adj. Plastic cheeks.	
Fine height adj			Accessory	Accessory	
Plunge limiter					
Guide bush Flange					
Guide bush standard		30mm	17mm	17mm	
Guide bush available		27, 40mm	Trend T5 will fit	Trend T5 will fit	
Dust extraction	Yes	Black screw-on spout	Clear plastic screw-on spout	Clear plastic screw-on spout	Yes
Take off diameter					
Table fix points		3 x 6mm tapped holes. Elu std	2 x 6mm tapped holes. Elu std.	2 x 6mm tapped holes. Elu std.	
Maker's accessories	Table, dovetail jig, guide rail	Table, dovetail jig, guide rail	Fine height adj and many others	Fine height adj and many others	Fine height adj and many others
Weight (kg)	5.7	5.8	2.8	2.9	1.7
List price (Incl. VAT)	398	488	233	199	229
Package available					
Storage					
Comments		Base same as Elu 177. Same fixing holes			

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d —



Make	DeWalt	DeWalt	DeWalt	DeWalt	DeWalt
Model	DW 620	DW 621 EK	DW 621 KL	DW 625	DW 625 E
Serial number		008368			006988
Input Watts	750	900	1100	1600	1850
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts	No	Yes	Yes	No	Yes
Fixed RPM	24,000	No	No	20,000	No
Variable RPM	No	8,000 - 24,000	8,000 - 24,000	No	8,000 - 20,000
Spindle lock	Yes	Yes	Yes	Yes	Button/pin
Switch		Safety/latching			Slider
Collet type		Multi-slit			Multi-slit
Collet standard	1/4in	1/4in	1/4in	1/4, 1/2in	1/4, 1/2in
Collets available	6, 8mm	6, 8mm	6, 8mm	6,8,10,12mm, 3/8	8mm, 3/8
Collet plunge		- 2mm			- 3mm
Base aperture		62mm			66mm
Visibility		Fair			Good
Plunge lock		Twist knob LH			Metal lever (RH)
Side fence		Removable rods, plastic adj. cheeks			Fine adj. Sliding cheeks, 10mm rods
Fine height adj		Accessory			Accessory
Plunge limiter					Yes
Guide bush Flange					Not circular
Guide bush standard		24mm			30mm
Guide bush available		10 - 40mm			10,24,27,40mm
Dust extraction	Yes	Built-in incl. removable spout	Yes	Yes	Trans plastic screw-on spout
Take off diameter					
Table fix points		2 x 6mm tapped holes. Elu std.			3 x 6mm tapped holes. Elu std
Maker's accessories	Fine height adj and many others	Fine height adj and many others	Fine height adj and many others	Fine height adj and many others	Fine height adj and many others
Weight (kg)	2.8	3.1	3.2	5.1	5.2
List price (Incl. VAT)	270	376	364	494	562
Package available					Yes
Storage					Tin case with EK
Comments		EK version supplied in metal case			

e – f

Where
to Buy
Routers



Make	Draper	Draper	Einhell	Felisatti	Festo/Festool
Model	R850V	R1900V	EQF 850SP	TP 246E	OF 1010 EBQ
Serial number	99110214	99126952	0198649	39822	011942 - 2000
Input Watts	850	1900	850	1800	1010
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts			No	No	No
Fixed RPM	No	No	24,000	No	No
Variable RPM	9,000 - 27,000	8,000 - 22,000	No	8,000 - 22,000	10,000 - 23,000
Spindle lock	Metal slider	Metal slider	Metal slide	Button/Pin	Yes
Switch	Slider	Toggle LH	Slider	Safety squeeze	Trigger
Collet type	Multi-slit	Multi-slit	Multi-slit	Multi-slit	Multi-slit
Collet standard	1/4in	1/2in, 1/4in	1/4in, 8mm	1/2in	1/4in, 8mm
Collets available	None listed		T5 compatible		6mm
Collet plunge	+ 4mm	+ 6mm	+ 2mm	+ 4mm	+ 7mm
Base aperture	40mm	63mm	40mm	50mm	49mm
Visibility	Good	Excellent	Good	Fair	Fair
Plunge lock	Twist knob	Lever RH	Twist knob RH	Plastic lever	Twist knob
Side fence	Sliding cheeks. Fine adjuster	Metal cheeks, fixed rods	Removable rods, adjustable cheeks	Fine Adj on rod. Sliding cheeks	Non-removable plastic faces
Fine height adj	None. T5 fits	Built-in	No (T5/Elu fit)		No
Plunge limiter				Yes	
Guide bush Flange					
Guide bush standard	30mm	30mm	30mm	None	None supplied
Guide bush available	Trend compatible		T5 compatible	Trend 96 type	10.8 - 40mm
Dust extraction	Clear clip-on spout	Clear screw-on spout	Clear clip-on plastic spout	Plastic spout	Built-in to router base. Very good.
Take off diameter			40mm	25/35mm	
Table fix points	None except GB holes	3 x 6mm tapped holes. Not Elu std	None except GB holes	Guide bush 5mm plain holes	Only guide bush holes 5mm tapped
Maker's accessories					Many including some specialised
Weight (kg)	2.8	5.6	2.7	5.2	2.7
List price (Incl. VAT)	120	220	165	195	364
Package available					
Storage					Systainer case
Comments			Many Trend/Elu accessories will fit this machine		

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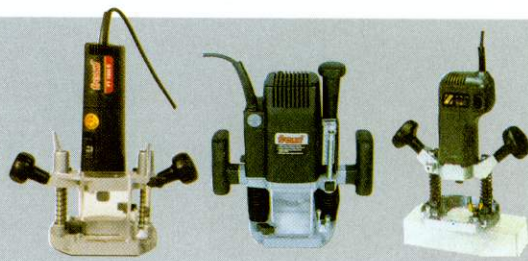
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f —



Make	Festo/Festool	Festo/Festool	Freud	Freud	Hitachi
Model	OF 2000 E Plus	OF 2000	FT 1000 E	FT 2000 E	ZK 2008
Serial number		486977	229085	552754	Y030038
Input Watts	1600	1800	900	1900	550
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts	No				No
Fixed RPM	25,500	No	No	No	27,000
Variable RPM	No	12,000 - 22,000	20,000 - 30,000	8,000 - 22,000	No
Spindle lock	Yes	Yes	Yes	Yes	Two spanners
Switch		Lever	Slider	Toggle	Slider
Collet type		Multi-slit	One-piece slit cone	Multi-slit EC	One-piece cone
Collet standard	1/2in, 8, 12mm	1/2in	1/4in, 8mm	1/4 sleeved, 1/2in	1/4in
Collets available	1/4, 3/8in, 10mm	1/4in, 8mm			8mm
Collet plunge		- 3mm	- 15mm	+ 6mm	- 10mm
Base aperture		77mm	60mm	60mm	50mm
Visibility		Good	Good	Good	Good
Plunge lock		Plastic lever	Lever	Lever	Twist knob
Side fence		Large with long rods	Fine adj. Fixed rods, metal cheeks	Fine adj. Fixed rods, metal cheeks	Crude metal fixed rods
Fine height adj		No	No	Built-in	
Plunge limiter		Yes			
Guide bush Flange					
Guide bush standard		30mm	30mm	30mm	18mm
Guide bush available		24, 27, 40mm			9.5 - 40mm
Dust extraction	Yes	Trans clip-on spout	Trans screw-on spout	Trans screw-on spout	Trans screw-on spout
Take off diameter			35mm		
Table fix points		3 x 5mm & 6 x 4mm tapped holes	3 x 5mm tapped holes	3 x 6mm tapped holes	Only guide bush holes 5mm tapped
Maker's accessories	Many including some specialised	Many including some specialised	Two separate trimmer bases		
Weight (kg)	5.1	5.1	1.45		2.3
List price (Incl. VAT)	456	538	206	341	143
Package available					
Storage		Systainer case	Plastic case	Plastic case	Plastic case
Comments		Supplied in Systainer, 12mm arbor for screw-on cutters	High speed router/trimmer. Not suitable for large dia. cutters	Almost identical to Atlas Copco, but not quite	Easy to make fine adj. Base same as Elu 96, but not holes

f – h



Make	Hitachi	Hitachi	Hitachi	Hitachi	Hitachi
Model	M6 SB	M8	M8 V	M12 SA	M12 V
Serial number	3900 36		DN 30054		D 740092
Input Watts	440	800	800	1600	1850
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts	Yes	Yes	Yes	Yes	Yes
Fixed RPM	30,000	25,000	No	22,000	No
Variable RPM	No	No	10,000 - 25,000	No	8,000 - 20,000
Spindle lock	Button/pin	Yes	Yes	Yes	Yes
Switch	Simple on/off		Slider		Slider
Collet type	Shallow cone		One-piece cone		One-piece cone
Collet standard	1/4in	1/4in	1/4in	1/4, 1/2, 3/8in	1/2, 3/8, 1/4in
Collets available	6mm	6, 8mm	8mm	6, 8mm	10mm sleeved
Collet plunge	Non-plunging		- 1mm		+ 1mm
Base aperture	35mm		52mm		52mm
Visibility	Poor		Good		Excellent
Plunge lock	N/A		Lever		Lever
Side fence	Small metal screws on		Fine adj. Short rods		Fine adj. Short rods
Fine height adj	N/A				
Plunge limiter	N/A				
Guide bush Flange					
Guide bush standard	10mm		18mm		18mm
Guide bush available			9.5 - 40mm		9.5 - 40mm
Dust extraction	No	No	Trans screw-on spout	No	Trans screw-on spout
Take off diameter					
Table fix points	None		Can use 4 face-plate 5mm holes		Can use 4 face-plate 5mm holes
Maker's accessories					
Weight (kg)	1.4	2.7	2.8	5.2	5.3
List price (Incl. VAT)	194	253	320	390	469
Package available					
Storage					
Comments			Easy to make fine height adjuster		Easy to make fine height adjuster

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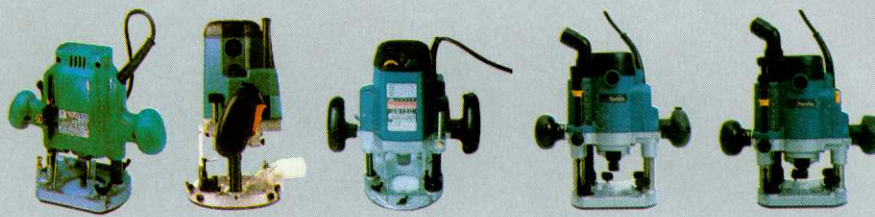
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h – m



Make	Holzher	Holzher	Holzher	Mafell	Mafell
Model	2355	2356	2365	LO 50E	LO 65E
Serial number		025945/772	8001		533814Z
Input Watts	720	1010	1800	900	1800
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts	Yes	Yes			
Fixed RPM	25,000	No	No	No	No
Variable RPM	No	8,000 - 25,000	10,000 - 25,000	10,000 - 22,000	8,000 - 20,000
Spindle lock	Yes	Metal slide	Button/pin	Button	Yes
Switch		Toggle LH	Lever	Trigger with latch	Rocker
Collet type		Multi-slit	Multi-slit	Multi-slit	Multi-slit EC
Collet standard	1/4in	1/4in	1/2in	1/4in	1/2in, 8mm
Collets available		6, 8mm	Elu compatible	8mm	
Collet plunge		+ 8mm	+ 1mm	- 3mm	+ 2mm
Base aperture		40mm	66mm	62mm	66mm
Visibility		Good	Fair	Fair	Fair
Plunge lock		Plastic lever	Plastic lever	Twist knob	Twist knob
Side fence		Non-adj plastic facings. Fine adj.	Fine adj. Sliding cheeks. Long rods	Removable short rods. Fine adj	Large with long rods. Fine adj
Fine height adj		Accessory	No	No	No
Plunge limiter			Yes	Yes	Yes
Guide bush Flange					
Guide bush standard		None	30mm	20mm	30mm
Guide bush available		17,24,27,30,40mm			
Dust extraction		Plastic spout held by fence rods	Clear plastic clip-on spout	Clear spout. Bayonet fitting	Clear clip-on spout
Take off diameter		36mm			
Table fix points		2 x 6mm tapped holes in base	5mm tapped guide bush holes	2 x 6mm tapped holes. Non-Elu std	5mm tapped guide bush holes
Maker's accessories				Guide rail	Guide rail
Weight (kg)	2.7	2.7	5.5	TBC	5.5
List price (Incl. VAT)	268	310	750	199	504
Package available					
Storage					
Comments			Speeds on adjusting wheel		Had steel base, now plastic. Only big router with twist knob plunge

m —



Make	Makita	Makita	Makita	Makita	Makita
Model	3620	3612	3612 C	RP 0910	RP 1110C
Serial number	374160E		30163E	1042E	1209E
Input Watts	860	1650	1850	900	1100
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts	No	Yes		Available	Available
Fixed RPM	24,000	22,000	No	27,000	No
Variable RPM	No	No	9,000 - 23,000	No	8,000 - 24,000
Spindle lock	No	Yes	Button/pin	Button/pin	Button/pin
Switch	Press button		Safety lock	Safety/latching	Safety/latching
Collet type	Simple cone		Multi-slit	Multi-slit	Multi-slit
Collet standard	1/4, 8mm	1/2in	1/2in	1/4in, 8mm	1/4in, 8mm
Collets available	8mm		1/4, 3/8in, 8mm	6mm	6mm
Collet plunge	0		+ 1mm	- 1mm	- 1mm
Base aperture	62mm		62mm	63mm	63mm
Visibility	Good		Fair	Good	Good
Plunge lock	Plastic lever LH		Metal lever (LH)	Twist knob LH	Twist knob LH
Side fence	Plain metal, welded on rods		Fine adj on rod. 10mm rods	Metal pressing, fixed rods	Metal pressing, fixed rods
Fine height adj	No		No	No	No
Plunge limiter			Yes		
Guide bush Flange					
Guide bush standard	None supplied		No	12mm	12mm
Guide bush available				DW621 compat.	DW621 compat.
Dust extraction	Clear plastic screw-on spout	Yes	Clear plastic clip-on spout	Built-in	Built-in
Take off diameter			37mm		
Table fix points	Guide bush holes only		None except guide bush	2 x 6mm tapped holes Elu std.	2 x 6mm tapped holes Elu std.
Maker's accessories					
Weight (kg)	2.4	5.8	6	3.3	3.4
List price (Incl. VAT)	203	385	432	294	364
Package available					
Storage					
Comments	Not table friendly. Short plunge stroke. Cutters stick through base		Very easy plunge. Round base & quick release guide bush		

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m -



Make	Metabo	Metabo	Metabo	Perles	Perles
Model	OF 528	OFE 1229 Signal	OFE 1812	OF 808	OF 808 E
Serial number		01229381	61046797 380	4-088-0029	E-5-1080111
Input Watts	500	1200	1800	850	850
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts	Yes				
Fixed RPM	27,000	No	No	25,000	No
Variable RPM	No	5,000 - 25,500	8,000 - 22,000	No	9,500 - 26,000
Spindle lock	Yes	Metal slide	Button/pin	Metal slide	Yes
Switch		Toggle LH	Safety squeeze	Slider	Slider
Collet type		Multi-slit	Multi-slit	Multi-slit	Multi-slit
Collet standard	1/4in	1/4in	1/2in	1/4in	1/4in
Collets available	3, 6, 8mm, 1/8in	3, 6, 8mm, 1/8in	6, 8mm, 1/4, 3/8in	6, 8mm	6, 8mm
Collet plunge		+ 6mm	- 4mm	+ 2mm	+ 2mm
Base aperture		46mm	50mm	40mm	40mm
Visibility		Good	Fair	Good	Good
Plunge lock		Twist knob	Plastic lever	Twist knob RH	Twist knob
Side fence		Non-adj. removable faces	Fine adj on rod. 10mm rods	Fine adj. Sliding cheeks	Fine adj. Sliding cheeks
Fine height adj		None	No	Accessory	Accessory
Plunge limiter			Yes		
Guide bush Flange					
Guide bush standard		None		30mm	30mm
Guide bush available		9,11,17,24,27,30	17,24,27,30,40mm	20, 27mm	20, 27mm
Dust extraction	Yes	Clip and screw plastic spout	Clear plastic screw-on spout	Clear clip-on spout	Clear clip-on spout
Take off diameter					
Table fix points		None. GB holes 5mm plain	Guide bush. 5mm plain holes	2 x 6mm tapped holes. Elu std	2 x 6mm tapped holes. Elu std
Maker's accessories					
Weight (kg)	3	3.4	5.1	2.7	2.7
List price (Incl. VAT)	367	400	570	100	130
Package available					
Storage					
Comments				An Elu clone with same base, but stuck-on sole plate	An Elu clone which takes most Elu 96 accessories

p – r

Where
to Buy
Routers



Make	Porter Cable	Porter Cable	Power Devil	Ryobi	Ryobi
Model	7529	7539	PDW 5027	TR 50	RE 120
Serial number	010171A9903		05279011326		
Input Watts	1300	2423	850	500	570
230/240 Volts	Yes	No	Yes	Yes	Yes
110/115 Volts	Yes	Yes		No	No
Fixed RPM	No	No	No	33,000	No
Variable RPM	8,000 - 23,000	10,000 - 21,000	9,000 - 28,000	No	16,000 - 26,000
Spindle lock	Yes	No	Yes	No	No
Switch	Safety/latching		Slider		
Collet type	Multi-slit/capt. nut		Simple cone		
Collet standard	1/4in & 1/2in	1/2in	1/4in, 6, 8mm	1/4in	1/4in
Collets available		1/4, 3/8, 6, 8, 10, 12			
Collet plunge	0mm		- 1mm		
Base aperture	89mm		40mm		
Visibility	Good		Fair		
Plunge lock	Sprung clamp lever		Plastic lever LH		
Side fence	Alloy		Stamped metal. Rods bolt on		
Fine height adj	Yes		No (T5 fits)		
Plunge limiter					
Guide bush Flange	Yes				
Guide bush standard	None		17mm		
Guide bush available			T5 compatible		
Dust extraction	Yes	No	Clear plastic. Screws to GB holes	No	Yes
Take off diameter	25mm				
Table fix points	4mm & 5mm		GB holes & 4 x 4mm base holes		
Maker's accessories					
Weight (kg)	5	7.8	3.75	1.4	2.2
List price (Incl. VAT)	494	604	50	199	187
Package available					
Storage					
Comments					Discontinued in the UK, but stocks may still be available

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Make	Ryobi	Ryobi	Ryobi	Ryobi	Skil
Model	RE 155	R 502	R 600	RE 601	1875 U1
Serial number	3389			7514	
Input Watts	800	1600	2050	2050	1400
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts		Yes	Yes	Yes	No
Fixed RPM		24,000	22,000	No	No
Variable RPM	16,000 - 27,000	No	No	10,000 - 23,000	8,000 - 22,000
Spindle lock	Metal slide	No	Yes	Button	Yes
Switch	DMH			DMH	
Collet type	One-piece cone			Multi-slit	
Collet standard	8mm, 1/4in sleeve	1/4, 3/8, 1/2, 8mm	1/4, 3/8, 1/2in	1/2in & sleeves	1/4, 1/2in
Collets available	6mm sleeve			6, 8mm, 1/4, 3/8in	
Collet plunge	- 2mm			- 2mm	
Base aperture	50mm			64mm	
Visibility	Good			Good	
Plunge lock	Metal lever RH			Lever RH	
Side fence	Plain metal. Short screw-on rod			Plain metal, short rods. Fine adjuster	
Fine height adj	No			Built-in	
Plunge limiter					
Guide bush Flange					
Guide bush standard	18mm			18mm	
Guide bush available	Same as Hitachi				
Dust extraction	Clear plastic screw-on spout	Yes	Yes	Clear plastic screw-on spout	No
Take off diameter					
Table fix points	2 x 5mm tapped holes			Nothing substantial	
Maker's accessories					
Weight (kg)	3	5	6.2	6.2	4.5
List price (Incl. VAT)	298	387	398	469	316
Package available					
Storage					
Comments	Supplied in plastic fitted case				Discontinued in the UK, but stocks may still be available

t - w



Make	Trend	Trend	Virutex	Virutex	Woodcut
Model	T5	T9	FR 77 C	FR 78 C	PRO 1800 E
Serial number	5-088-0382	101115			039827 5120136
Input Watts	850	1800	850	850	1800
230/240 Volts	Yes	Yes	Yes	Yes	Yes
110/115 Volts	Yes	Yes	Yes	Yes	
Fixed RPM	No	No	24,000	No	No
Variable RPM	9,000 - 27,000	8,000 - 22,000	No	8,000 - 24,000	8,000 - 22,000
Spindle lock	Metal slide	Button/pin	No	No	Button/pin
Switch	Slider LH	Safety squeeze			Safety squeeze
Collet type	Multi-slit	Multi-slit			Multi-slit
Collet standard	1/4in, 8mm	1/2, 1/4in	1/4, 3/8in	1/4, 3/8in	1/2in
Collets available	3, 6mm, 1/8in	6,8,12mm, 3/8in			1/4in, 8mm
Collet plunge	+ 2mm	- 5mm			- 4mm
Base aperture	40mm	76mm			50mm
Visibility	Good	Fair			Fair
Plunge lock	Twist knob RH	Plastic lever			Plastic lever
Side fence	Removable rods, sliding cheeks	Fine adj on rod, Sliding cheeks			Fine adj on rod, Sliding cheeks
Fine height adj	Accessory	Accessory			No
Plunge limiter		Yes			Yes
Guide bush Flange					
Guide bush standard	20mm	30mm			27mm
Guide bush available	10 - 40mm	10,40,50,60,70mm			On request
Dust extraction	Clear clip-on spout	Clear plastic screw-on spout	Yes	Yes	Clear plastic screw-on spout
Take off diameter	40mm	35mm			
Table fix points	2 x 6mm tapped holes, Elu std.	3 x 6mm tapped holes, Elu std			Guide bush 5mm plain holes
Maker's accessories	Many Trend accessories	Many Trend accessories			
Weight (kg)	2.7	5.2	3.1	3.1	5.2
List price (Incl. VAT)	199	351	182	223	260
Package available		Yes			
Storage		Tin case with EK			
Comments		Best range of guide bushes. Trend's answer to Elu 177			Router price includes 12-piece Chinese cutter set

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DMT Planer thicknesser 9in x 6in cast iron construction £350. Sedgewick spindle moulder 30mm spindle as new £500. Industrial Dewalt radial saw 14in dia blade 4hp motor £500 Tel: 07961 148002 (Co. Durham).

Letter and number templates for Routergraph etc. 30mm inc. capitals low case and numbers 122 in set £40 inc. p&p. Tel: 01274 598616 (W. Yorks).

Curved top cabinet door router templates 10in set covering 10 sizes of frames and panels (US made) £70 inc. p&p. Tel: 01274 598616 (W. Yorks).

Trend Airshield unused still in box, offers. Tel: 01527 853208 (Warwickshire).

Routing magazines issues 1 - 40 mint £15 + p&p. The Router magazines issues 1 - 32 mint £15 + p&p. Tel: 01322 664388 (Kent).

ELU 853401 bandsaw complete with stand, accessories, spare blades £100 phone 01780 480010 (day) 01780 766478 (Evenings) (Lincs).

Sedgwick 571 Mortiser single phase £625 four new ringway chisels 1/4 - 1in and sharpening tools £150. Tel: 01483 850046 (Surrey).

Record CL3 36 x 30 lathe with bowl stand bench and tools only had hobby use bargain at £500. Tel: 02392 412908 (Hampshire).

Carba-Tec mini lathe, unused £65. Tel: 01905 774472 (Worcs).

Startrite thicknesser planer 12in wide cast iron top very good condition, single phase, bargain £500. Tel: 01252 614055 (Hants).

Kity 1637 planer thicknesser 10 x 8in excellent condition £600 ono. APTC 1100 dust extractor, excellent condition £100 ono. Tel: 01359 232546 (Suffolk).

Arcoy Standard Dovetailer with housing joint attachment and cutters. Offers tel: 01480 395109 (Camps).

Myford ML8 lathe 30in Cen heavy duty cabinet, accessories, face plates, turning tools, saw attachment £300 ono VGC. Tel: 01380 850978 (Wiltshire).

DeWalt 1150 Planer Thicknesser £200 with mortising attachment. Site saw 300 mm TCT blade £100. Tel: 0117 9697665 (Bristol).

Dewalt bandsaw BS/1310, tilt table rip fence, adjustable speed on stand six blades instruction manual, little used £120. Tel: 01234 359794 (Beds).

Record Lathe CL1-36 x 15 green complete with RP3000 chuck chisels taper chuck all as new will accept £250. Tel: 01480 352152 (Camps).

Kity K5 table saw 6 x 4in planer thicknesser plus accessories £350. DeWalt Powershop DW125 radial arm saw plus 3 tungsten carbide blades £250. Tel: 01277 227459 (Essex).

Kity 1637 planer thicknesser as new £400. Tel: 01844 214838 (Thame).

Elektra Beckum PKF 255 circular saw. Single phase single blade. Nearly new VGC £500 ono. Tel: 01865 343551 (Oxford).

Turning blanks 10 x 3in (£8) 8 x 3in (£6) cherry, yew, Apple/pear branches 12 x 3in exotic squares rosewood, walnut, mahogany tel: 01932 840744 (Surrey).

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Good quality joinery, cabinet making, pattern makers tools and accessories especially unusual items. Tel: 0191 236 6173 (Newcastle).

Mortiser and veneer press wanted. Tel: 07941 096806 (Devon).

Bandsaw single phase. Medium to large. Solidly built. Tel: 01923 721380 (Herts).

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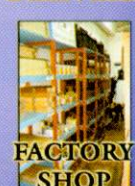
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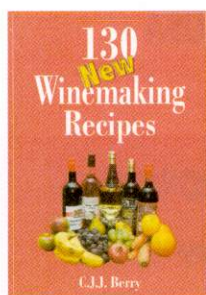
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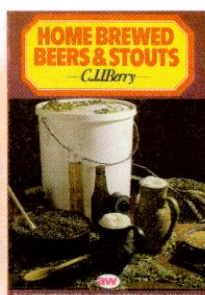
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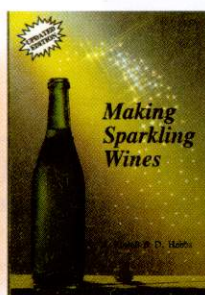
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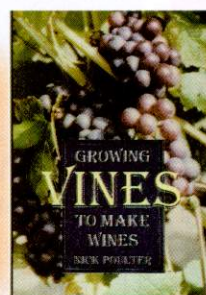
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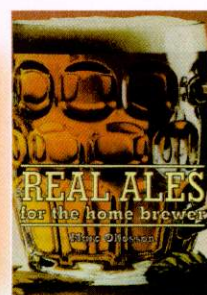
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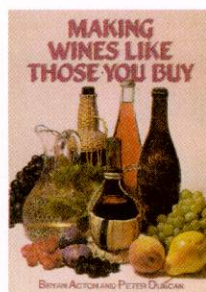
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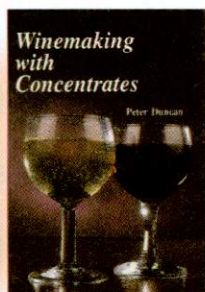
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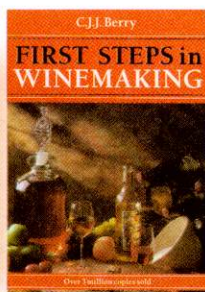
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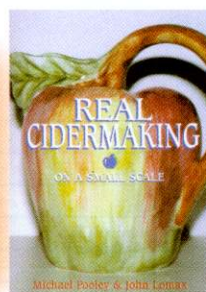
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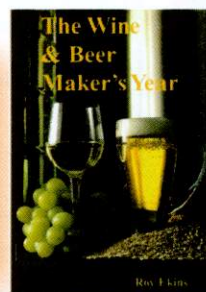
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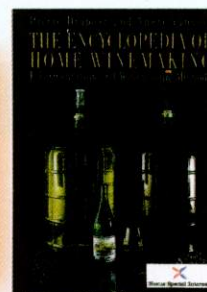
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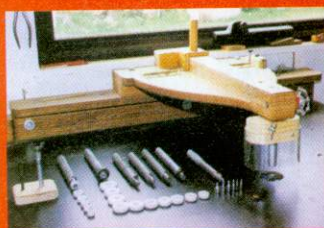
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- Micro-grain carbide
- Special coating
- ISO 9002 Quality Registered Manufacturer
- Supplied in protective storage box

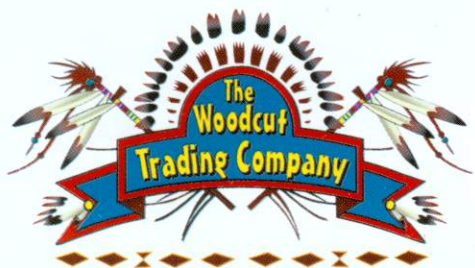
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