



DC400



trend[®]
routing technology

PATENT NO. US 6,032,706
INTERNATIONAL PATENT APPLIED FOR

Dear Customer

Thank you for purchasing this Trend product, we hope you enjoy many years of creative and productive use.

Please remember to return your guarantee card within 28 days of purchase.

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TECHNICAL DATA

Dovetail size	Variable
Max. workpiece width	400mm
Workpiece thickness:	
Through dovetail	19mm
Lapped dovetail	25mm
Guide Bush size	11.1mm
Weight	11.9kg

The following symbols are used throughout this manual:



Denotes risk of personal injury, loss of life or damage to the tool in case of non-observance of the instructions in this manual.



Refer to the instruction manual of your power tool.

This unit must not be put into service until it has been established that the power tool to be connected to this unit is in compliance with 98/37/EC (identified by the CE marking on the power tool).

INTENDED USE

This jig is intended for use with a router to rout dovetail joints in timber.



If you require further safety advice, technical information or spare parts, please call our technical support department on 01923 224681, or visit www.trendmachinery.co.uk.

SAFETY



WARNING:

Observe the safety regulations in the instruction manual of the power tool to be used. Please read the following instructions carefully. Failure to do so could lead to serious injury. When using electric tools, basic safety precautions, including the following should always be followed to reduce the risk of fire, electric shock and personal injury. Also observe any applicable additional safety rules. Read the following safety instructions before attempting to operate this product.

PLEASE KEEP THESE INSTRUCTIONS IN A SAFE PLACE.

The attention of UK users is drawn to The Provision and Use of Work Equipment Regulations 1998, and any subsequent amendments.

Users should also read the HSE/HSC Safe Use of Woodworking Machinery Approved Code of Practice and Guidance Document and any amendments.

Users must be competent with woodworking equipment before using our products.

IMPORTANT NOTE:

Residual Risk. Although the safety instructions and operating manuals for our tools contain extensive instructions on safe working with power tools, every power tool involves a certain residual risk which cannot be completely excluded by safety mechanisms. Power tools must therefore always be operated with caution!

General

1. Disconnect power tool and attachment from power supply when not in use, before servicing, when making adjustments and when changing accessories such as cutters. Ensure switch is in "off" position. Always ensure cutter has stopped rotating.
2. Always mount the power tool, accessory or attachment in conformity with the instructions. Only use attachment and accessories specified in the power tool manual. The tool or attachment should not be modified or used for any application other than that for which it was designed. Do not force tool.
3. Keep children and visitors away. Do not let children or visitors touch the tool, accessory or attachment. Keep children and visitors away from work area. Make the workshop child proof with padlock and master switch.
4. Dress properly. Do not wear loose clothing or jewellery, they can be caught in moving parts. Rubber gloves and non-skid footwear is

recommended when working outdoors. Wear protective hair covering to contain long hair.

5. Consider working environment. Do not use the product in the rain or in a damp environment. Keep work area well lit. Do not use power tools near gasoline or flammable liquids. Keep workshop at a comfortable temperature so your hands are not cold. Connect machines that are used in the open via a residual current device (RCD) with an actuation current of 30 mA maximum. Use only extension cables that are approved for outdoor use.
6. The accessory or attachment must be kept level and stable at all times.
7. Keep work area clean. Cluttered workshops and benches can cause injuries. Ensure there is sufficient room to work safely.
8. Secure idle tools. When not in use, tools should be stored in a dry and high or locked up place, out of reach of children.
9. For best control and safety use both hands on the power tool and attachment. Keep both hands away from cutting area. Always wait for the spindle and cutter to stop rotating before making any adjustments.
10. Always keep guards in place and in good working order.
11. Remove any nails, staples and other metal parts from the workpiece.
12. Maintain tools and cutters with care. Keep cutters sharp and clean for better and safer performance. Do not use damaged cutters. Follow instructions for lubricating and changing accessories. Keep handles dry, clean and free from oil and grease.
13. Maintain accessories. Do not use damaged accessories. Only use accessories recommended by the manufacturer.
14. Check damaged parts. Before operation inspect the attachment, the power tool, the cable, extension cable and the plug carefully for signs of damage. Check for alignment of moving parts, binding, breakage, mounting and any other conditions that may affect its operation. Have any damage repaired by an Authorised Service Agent before using the tool or accessory. Protect tools from impact and shock.
15. Do not use tool if switch does not turn it on or off. Have defective switches replaced by an Authorised Service Agent
16. Don't over reach. Keep proper footing

and balance at all times. Do not use awkward or uncomfortable hand positions.

17. Don't abuse the cable. Never carry power tool or accessory by cord or pull it to disconnect from the socket. Keep cord from heat, oil and sharp edges. Always trail the power cord away from the work area.
18. Connect dust extraction equipment. If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.
19. Check all fixing and fastening nuts, bolts and screws on power tool, attachment and cutting tools before use to ensure they are tight and secure. Periodically check when machining over long periods.
20. Stay alert. Watch what you are doing. Use common sense. Do not operate tools when you are tired, under the influence of drugs or alcohol.
21. Personal Protective Equipment (PPE) for eye, ear and respiratory protection must be worn. All PPE must meet current UK and EU legislation.
22. Do not leave tools running unattended. Do not leave tool until it comes to a complete stop.
23. Always clamp workpiece being machined securely.
24. Only use cutting tools for woodworking that meet EN847-1/2 safety standards, and any subsequent amendments.
25. Vibration levels. Hand held power tools produce different vibration levels. You should always refer to the specifications and relevant Health & Safety Guide.

Routing Safety

1. Read and understand instructions supplied with power tool, attachment and cutter.
2. Keep hands, hair and clothing clear of the cutter.
3. Remove adjusting keys and spanners. Check to see that keys and adjusting spanners are removed from the router tool, cutter and attachment before turning router on. Make sure cutter can rotate freely.
4. Noise. Take appropriate measures for the protection of hearing if the sound pressure of 85dB(A) is exceeded. Routing sound pressure may exceed 85dB(A), so ear protection must be worn.
5. Eye protection. Always wear eye protection in the form of safety goggles, spectacles or visors to protect the eyes.

6. Respiratory protection. Wear a face or dust mask, or powered respirator. Dust masks/filters should be changed regularly.
7. Do not switch router on with the cutter touching the workpiece. At the end of the cut, release the router plunge and allow spindle to stop rotating. Never use the spindle lock as a brake
8. The direction of routing must always be opposite to the cutter's direction of rotation. Do not back-cut or climb-cut.
9. Check before cutting that there are no obstructions in the path of the router. Ensure there are no obstacles beneath workpiece when cutting full thickness, and that a sacrificial work surface is used.

Router Cutter Safety

1. Cutting tools are sharp. Care should be taken when handling them. Do not drop cutters or knock them against hard objects. Handle very small diameter cutters with extra care. Always return cutter to its packaging after use.
2. Always use cutters with a shank diameter corresponding to the size of the collet installed in your tool.
3. The maximum speed (n.max) marked on the tool, or in instructions or on packaging shall not be exceeded. Where stated the speed range shall be adhered to. Recommended speeds are shown in the Trend Routing Catalogue and/or website.
4. Always use router cutters in a router. Drill and boring bits must not be used in a router. Router cutters must only be used for the material cutting application for which they are designed. Do not use on metal or masonry.
5. Never use cutters with a diameter exceeding the maximum diameter indicated in the technical data of the powertool or attachment used.
6. Before each use check that the cutting tool is sharp and free from damage. Do not use the cutting tool if it is dull, broken or cracked or if in any other damage is noticeable or suspected.
7. Cutters should be kept clean. Resin build up should be removed at regular intervals with Resin Cleaner[®]. The use of a PTFE dry lubricant will reduce resin build up. Do not use PTFE spray on plastic parts.
8. When using stacked tooling (multi-blade, block and groover etc.) on a spindle arbor, ensure that the cutting edges are staggered to each other to reduce the cutting impact.
9. Cutter shanks should be inserted into the collet all the way to the line

indicated on the shank. This ensures that at least $\frac{3}{4}$ of the shank length is held in the collet. Ensure clamping surfaces are cleaned to remove dirt, grease, oil and water.

10. Observe the correct assembly and fitting instructions in the router instruction manual for fitting the collet, nut and cutter.
11. Tool and tool bodies shall be clamped in such a way that they will not become loose during operation. Care shall be taken when mounting cutting tools to ensure that the clamping is by the shank of the cutting tool and that the cutting edges are not in contact with each other or with the clamping elements.
12. It is advisable to periodically check the collet and collet nut. A damaged, worn or distorted collet and nut can cause vibration and shank damage. Do not over-tighten the collet nut
13. Do not take deep cuts in one pass; take several shallow or light passes to reduce the side load applied to the cutter and router. Too deep a cut in one pass can stall the router.
15. In case of excessive vibrations whilst using the router stop immediately and have the eccentricity of the router, router cutter and clamping system checked by competent personnel
15. All fastening screws and nuts should be tightened using the appropriate spanner or key and to the torque value provided by the manufacturer.
16. Extension of the spanner or tightening using hammer blows shall not be permitted.
17. Clamping screws shall be tightened according to instructions provided by the manufacture. Where instructions are not provided, clamping screws shall be tightened in sequence from the centre outwards.

Using Routers In A Fixed Position

1. Attention should be made to the HSE's Safe Use of Vertical Spindle Moulding Machines Information Sheet No.18 and any revisions.
2. After work, release the router plunge to protect the cutter.
3. Always use a push-stick or push-block when making any cut less than 300mm in length or when feeding the last 300mm of the cut.
4. The opening around the cutter should be reduced to a minimum using suitably sized insert rings in the table and closing the back fence cheeks or fitting a false fence on the back fence.
5. Whenever possible use a work

holding device or jig to secure component being machined. Ensure any attachment is securely fitted to the workbench, with table surface at approximately hip height.

6. Use a No-Volt Release Switch. Ensure it is fixed securely, easily accessible and used correctly.
7. In router table (inverted) mode, stand to the front right of the table. The cutter will rotate anti-clockwise when viewed from top so the feed direction is from the right (against the rotation of the cutter). In overhead mode, stand to the front left of the machine table and the feed direction is from the left.
8. Do not reach underneath table or put your hands or fingers at any time in the cutting path while tool is connected to a power supply.
9. Never thickness timber between the back of the cutter and the backfence.

Useful Advice When Routing

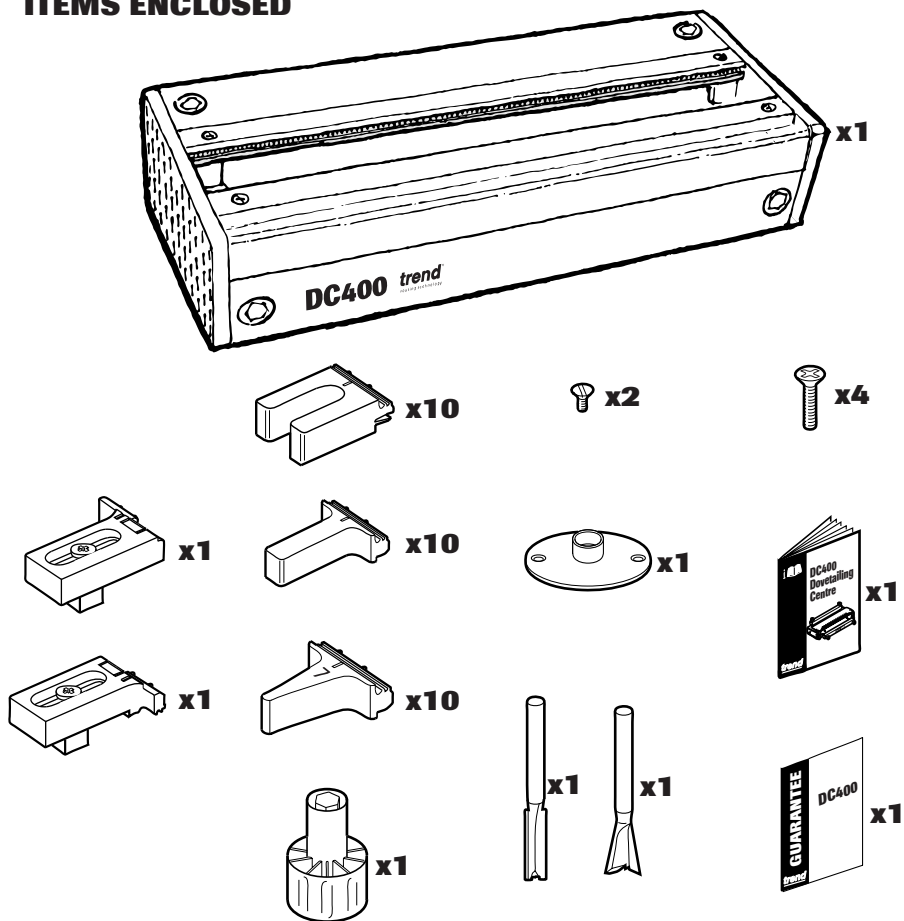
1. Judge your feed rate by the sound of the motor. Feed the router at a constant feed rate. Too slow a feed rate will result in burning.
2. Trial cuts should be made on waste material before starting any project.
3. When using some attachments e.g. a router table or dovetail jig, a fine height adjuster is recommended.
4. When using a template guide bush, ensure there is sufficient clearance between cutter tip and inside edge of bush and that it cannot come into contact with collet and nut. Ensure cutter and guide bush are concentric.

Router Cutter Repair/Maintenance

1. Repair of tools is only allowed in accordance with the manufacturers instructions.
3. The design of composite (tipped) tools shall not be changed in process of repair. Composite tools shall be repaired by a competent person i.e. a person of training and experience, who has knowledge of the design requirements and understands the levels of safety to be achieved.
4. Repair shall therefore include, e.g. the use of spare parts which are in accordance with the specification of the original parts provided by the manufacturer.
5. Tolerances which ensure correct clamping shall be maintained.
6. Care shall be taken that regrinding of the cutting edge will not cause weakening of the body and the connection of the cutting edge to the body.

Version 7.1 06/2006

ITEMS ENCLOSED

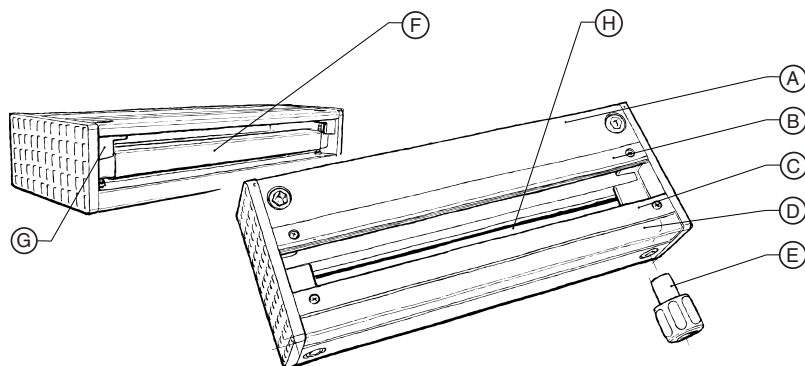


ITEMS REQUIRED

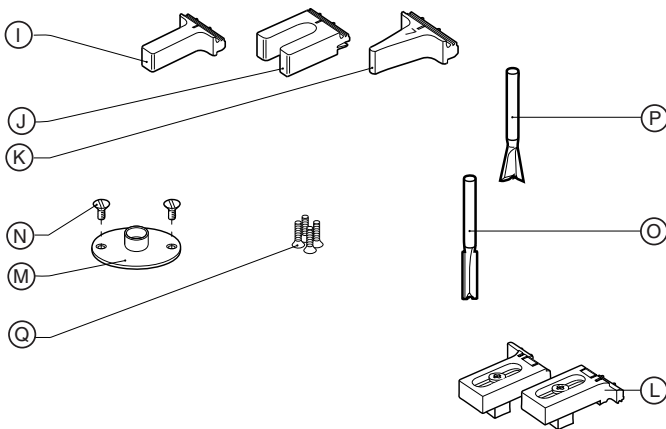
- 1/4" plunge router.
- Hand tools.

Ref. UNIBASE (for certain makes and models of router)

**DESCRIPTION
OF PARTS**



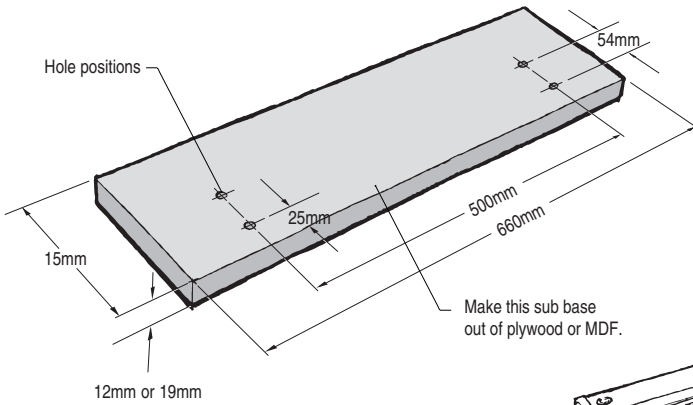
- (A) Jig body
- (B) Rear guide rail
- (C) Front guide rail
- (D) Window
- (E) Knob
- (F) Horizontal clamp bar
- (G) Side fence
- (H) Vertical clamp bar
- (I) Lapped dovetail (half blind) pin guide
- (J) Tail guides
- (K) 7° through dovetail pin guide
- (L) Lapped pin stop
- (M) Guide bush 11.1mm Ø
- (N) Guide bush fixing screws
- (O) Straight cutter 8mm Ø x 26mm cut
- (P) Dovetail cutter 97° x 11.3mm Ø
- (Q) Bench fixing screws



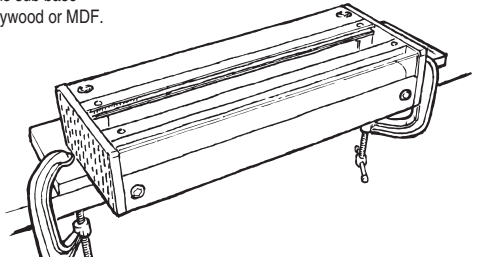
PREPARATION

Mounting Instructions

To make a 'sub base', cut 12mm or 19mm plywood or M.D.F. board to the dimensions shown below. Drill four 8mm holes in the positions shown and counter sink them. Attach the jig with the four mounting bench screws supplied. Clamp or screw the sub base to your workbench.



Clamp or screw the sub base to your work surface.

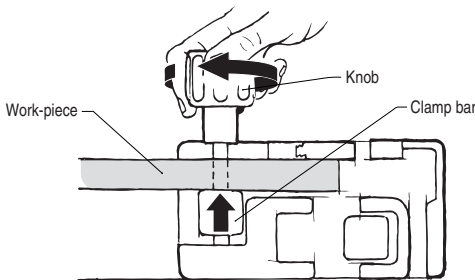


CLAMPING ARRANGEMENT

The jig has two independent parallel clamping systems. The work piece thickness range of both clamping systems is from 6.3mm up to 25mm.

Horizontal Clamp

Insert the clamp knob in one of the sockets on the **top** of the jig to operate the horizontal clamp. Turn the knob clockwise to draw the clamp tube upwards and hold a horizontal work piece up against the underside of the top surface of the jig body.



LAPPED PINS are clamped in the HORIZONTAL clamp.



LAPPED DOVETAILS are clamped vertically against the FRONT CHANNEL.

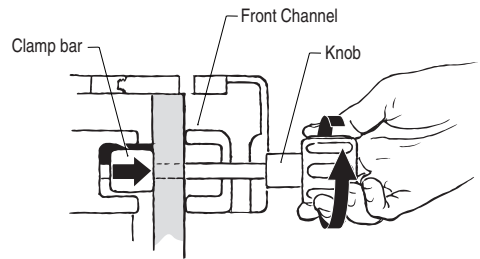


THROUGH DOVETAIL PINS and TAILS are clamped vertically against the REAR CHANNEL.

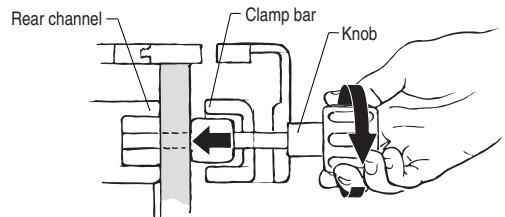
Vertical Clamp

By drawing the clamp tube back inside one channel, you can clamp against the opposite channel. These two channels, 'FRONT' and 'REAR', are the two fixed and independent vertical clamping surfaces. Each clamping surface has a specific purpose.

Install the clamp knob in one of the sockets on the **front** of the jig to operate the vertical clamp. Rotate the knob clockwise or anti-clockwise to move the clamp tube forwards and backwards between, and inside the two fixed channels.



Vertical Clamp Against the Front Channel



Vertical Clamp Against the Rear Channel



Avoid over clamping. Never store the jig with the clamping system under pressure. Never use a hex key in place of the clamp knob. Always remove the clamp knob before routing.

Work Piece Alignment

Always clamp a work piece with one edge tight up against the side fence, and the end firmly in contact with the underside of all the guide fingers.

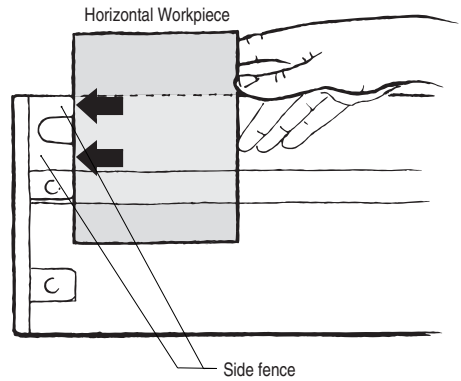
As a general rule, mount your work piece at the left hand end of the jig. The exceptions include duplicate joint layouts, mirror image layouts, and joining work pieces of different width.

If a vertically clamped work piece is not dead square across the end, it will rock between the undersides of the guide fingers and the side fence. It is essential that the ends of the material are cut dead square and touches the undersides of the guide fingers and the edge of the work piece touches the fence.



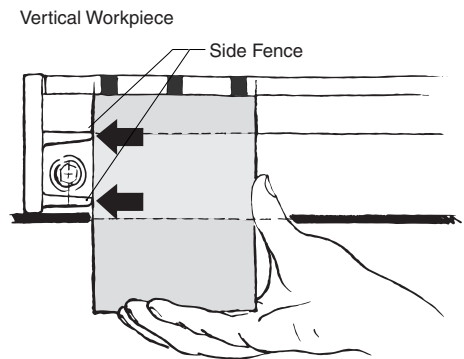
Wood waste may get trapped behind the vertical and horizontal clamp bars and prevent full travel. Clean out waste with compressed air or a soft brush. Do not apply solvents or lubricants of any kind to the clamp shaft threads. The steel shafts ride on threaded brass blocks and impregnated bearings, and are therefore self-lubricating.

TOP VIEW



If a horizontally clamped work piece is not dead square across the end, it will project at an angle and cause problems with joint fit on lapped dovetails.

FRONT VIEW

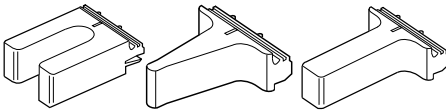


ASSEMBLY

Guide Fingers and Guide Rails

The guide fingers and guide rails provide precision guide surfaces for the guide bush to follow, allowing the cutter to form the joint elements.

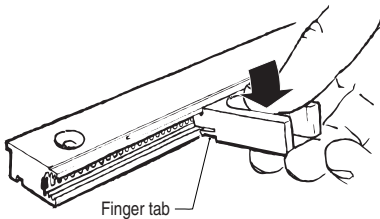
There are three basic types of guide finger:



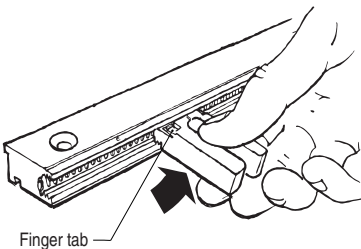
Tail guide Pin guide Lapped pin guide

Guide Finger Orientation

Install guide fingers from above (SNAP DOWN) if you want to move the guide fingers around above a work piece. The finger tab is to the underneath of the guide.



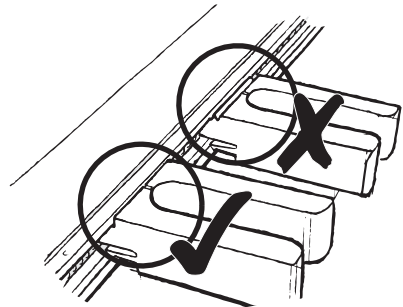
Install guide fingers from below (SNAP UP) to provide resistance to the impact from installing a work piece. The finger tab will be on top of the guide.



Installing Guide Fingers

Before installing a guide finger, make sure the guide finger and the guide rail are clean and free of waste. Hold the guide finger at a 30° angle, hook it under the guide rail, lower it part way down, and slide it gently sideways until you feel it engage a slot. Continue downwards until it snaps into place horizontally. Then mark guide finger positions with a pencil mark on the guide rail.

The first time guide fingers are installed, you will feel more resistance than at subsequent times. This is because the tongues on the guide fingers bed down to size the first time they are installed.



Do not force the guide fingers as you may damage the index strip.

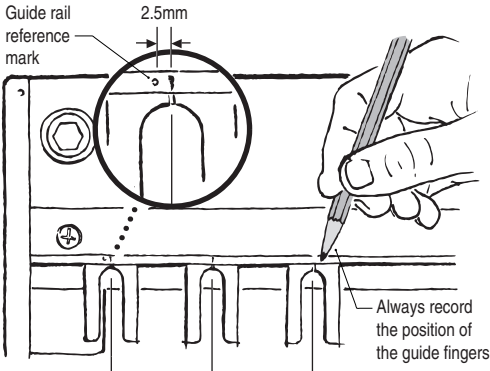


Exercise caution with the finger tabs on the underside of the guides - flexing them may cause permanent damage.

Guide Rail

Guide fingers are installed on the rear guide rail, over the work piece. The guide has an integral index strip which is indexed in 2.5mm increments. Cut your work pieces in 2.5mm width increments, and lay out the pin spacing to your own taste. The indexed guide rail makes your layouts fully and accurately repeatable.

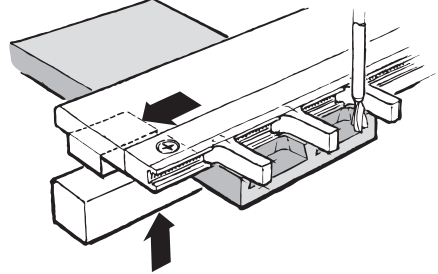
The reference marks at each end of the guide rail indicate the position of the side fence (also the edge of your work piece). As a general rule, position the first guide finger one increment (2.5mm) in from this mark to form a "half pin" with sufficient strength and a balanced appearance.



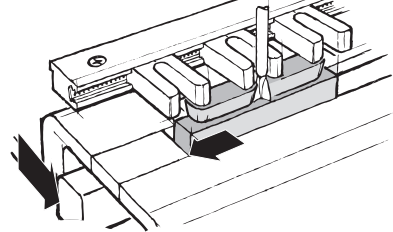
Clean out waste in the guide rail with a brush, compressed air, or by blowing it out. Remove hardened resin from the jig with Trend Resin Cleaner[®].

Remove resin build up from the guide fingers by washing in hot soapy water and a soft cloth. Do not use solvents of any kind.

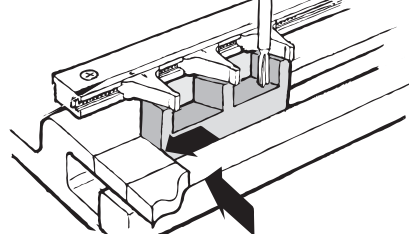
Lapped Dovetail Pins



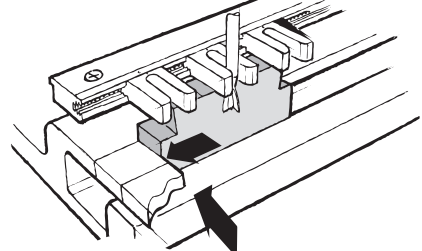
Lapped Dovetail Tails



Through Dovetail Pins



Through Dovetail Tails



Waste Collection

The waste collection system will remove most of the wood chips and dust created.

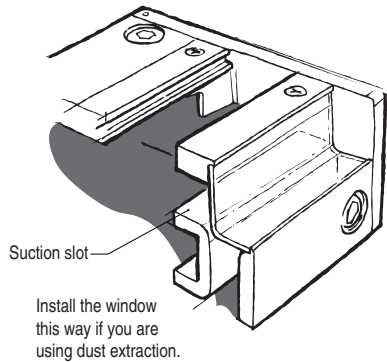
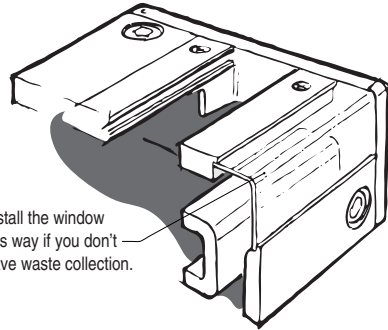
Positioning Window

To remove the window, press down on the top surface of the window, at the same time pulling it towards you, until it snaps out from under the upper lip. Peel off the protective films.

If you don't have a vacuum extractor, reinstall the window (lower lip first) as it was supplied, with the corner section of the window pointing towards you. In this position it deflects wood waste downwards through the open jig body, away from your face and clothing.

If you have a vacuum extractor, rotate the window 180° on its long axis, and reinstall it with the 'V' section of the window pointing down into the jig to form a long narrow suction slot along the length of the jig for wide work pieces.

Under certain conditions, large cuttings or chips may plug the slot. If this happens frequently, try reversing the window.



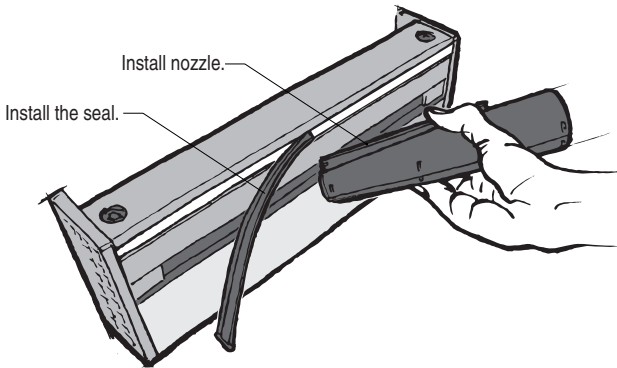
To remove resin build up from the polycarbonate window, wash it carefully with plenty of hot soapy water and a soft cloth. Abrasive cleaners will scratch polycarbonate.

**Optional Waste Collection
Accessory Ref. DC400/01**

The optional waste collection kit includes a nozzle, an additional shutter, adapters for attaching the nozzle to standard 57mm and 25.4mm hose, and a flexible strip for sealing the jig body.

Squeeze the top of the nozzle together, and insert into the channel below the front of the jig. Slide back and forth to any convenient position.

With a sharp knife, cut one or two lengths of rubber seal to close off the open sections left in the channel. Push the seal all the way into one slot, and then tuck it into the opposite slot.



If you are routing work pieces less than 250mm wide at the same end of the jig as the nozzle, try positioning the window with the 'corner' section pointing towards you. The suction at the unused end of the jig will then drop to zero. The reduced resistance may improve waste collection efficiency by increasing the air flow at the active end of the jig.

Guide Bush

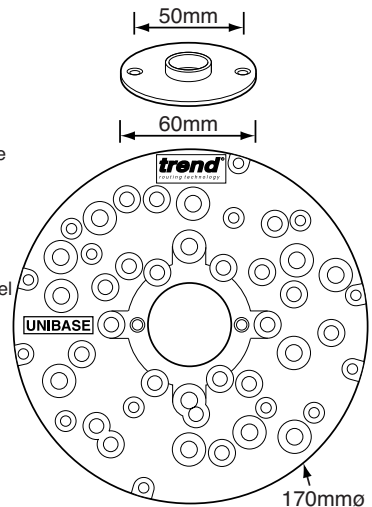
The 11.1mm diameter guide bush is supplied with the jig. It attaches to the base of your router and makes contact with the jig's guide surfaces (the guide fingers, rear guide rail and front guide rail) to allow the cutter to form the joint elements.

The jig will only work with an 11.1mm guide bush. If you need to make a fine adjustment to a through dovetail joint fit, try an oversize or undersize straight cutter. They are available as accessories Ref. 3/42 and 3/44 respectively.

Guide Bushes

The bushes supplied with the jig and accessories are a standard Trend TBC pattern. They will fit most Trend, Elu and DeWalt routers directly.

For other makes and model of router a sub-base may be required to allow the guide bush to be fitted. The UNIBASE has been designed for use with a variety of routers; it also ensures concentricity between cutter and guide bush ensuring accuracy.



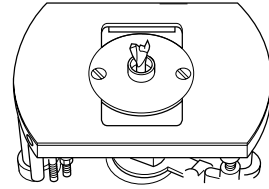
Setting up the Router 

The router base always rests on the guide rails. It should never touch the guide fingers.

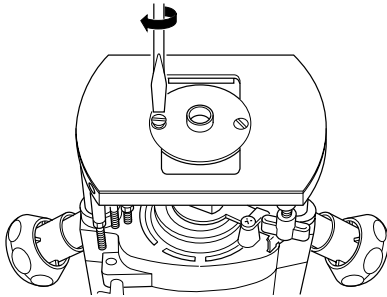
You will need a router with a minimum power rating of 850 watts and a 6.3mm (1/4") collet.

To check your router suitability, install the 11.1mm guide bush. Rest the router on the jig and make sure it does not rock due to a warped router base. Then, with the guide bush in contact with the front guide rail, rotate the router to make sure it does not drop onto the pencil ledge on the rear guide rail, or fall between the guide rails.

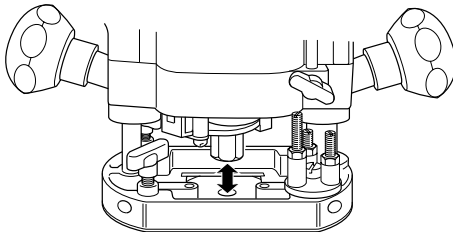
If the router rocks on the guide rails, or if your router does not span the jig mouth, you will need to install a sub base, such as the Trend universal sub base Ref. UNIBASE (see opposite page)



3. Fit cutter into collet.



1. Fix guide bush to base of router.



2. Lower collet to within 2mm of Guide bush.



Fit a fine height adjuster if available, as this will make it easier to adjust the height accurately.



If waste is allowed to accumulate between the guide bush and the cutter shaft, heat will be generated. Remove the waste carefully, taking care not to damage the guide bush.



Check the cutter for free running every time you use the jig. Also check for excessive heat after use, as it may indicate a dull cutter.



Never install, adjust or even inspect cutters and guide bushes unless your router is unplugged.

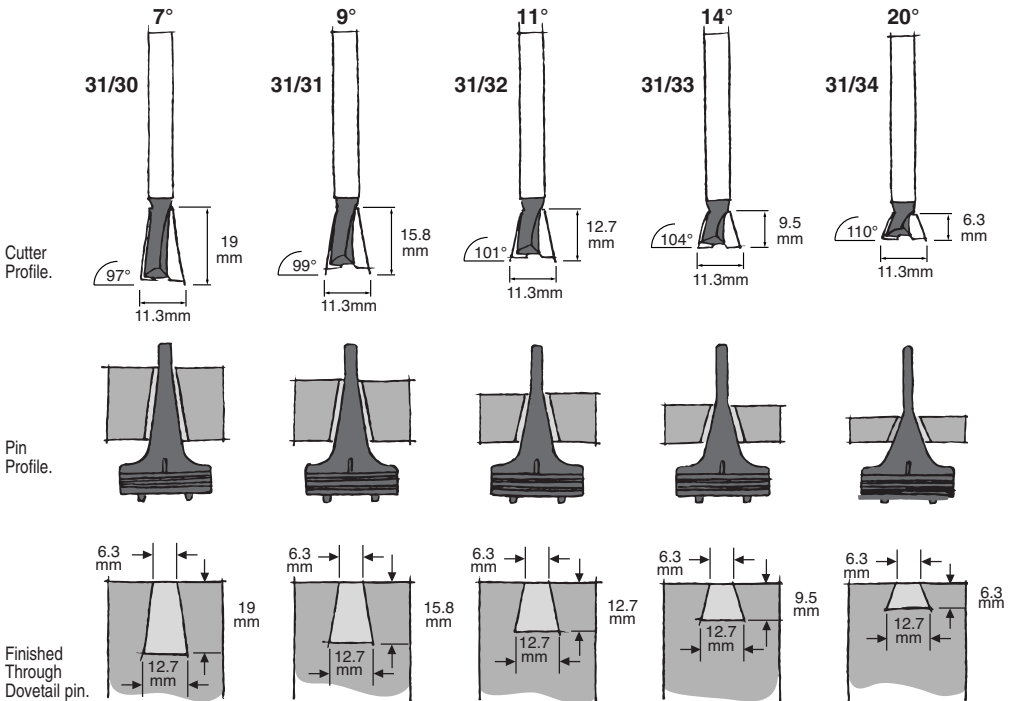
Dovetail Cutters

The dovetail cutters, guide fingers and the jig are all geometrically related.

The five dovetail cutters range in depth from 6.3mm to 19mm in 3.2mm increments, with corresponding angles ranging from approximately 20° down to 7°. These cutters all share the same base diameter and the same neck diameter, and the angles of the through dovetail pin guides are matched to the angles of the cutters.

Through Dovetails

The range of five cutters can be used to create five different through dovetail pin profiles. This means that all through dovetail pin work pieces can be mounted in the same fixed position in the jig (the rear channel). It also means the jig does not require any adjustment for dovetail size or work piece thickness.



For accurate results always use the recommend cutters.

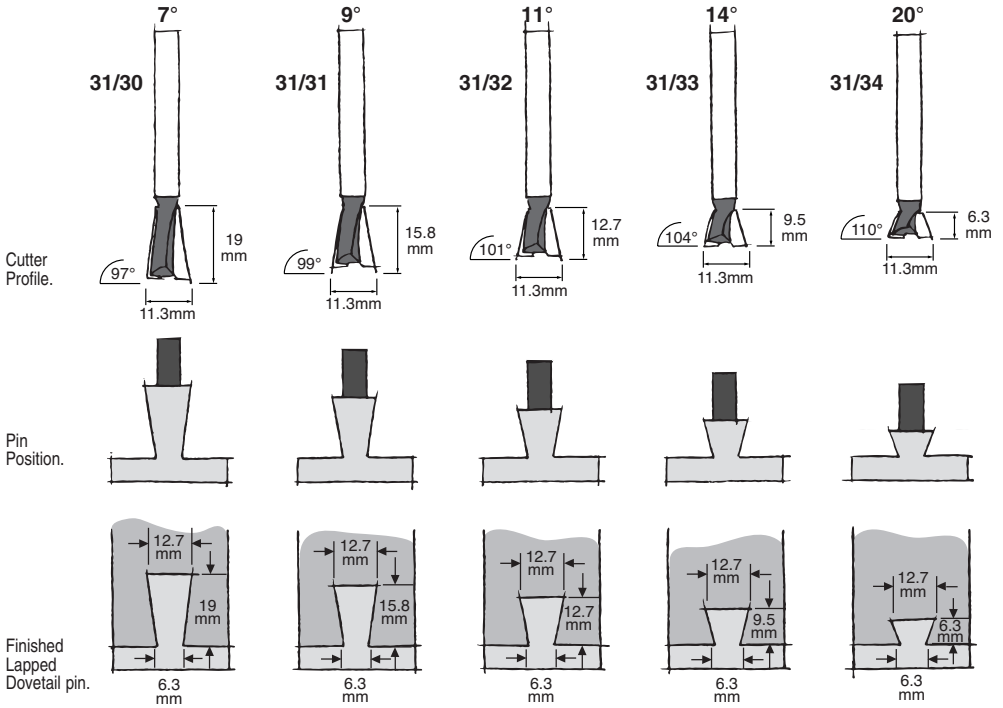


We do not recommend the use of bearing guided cutters. Bearing guided cutters may result in damage to the jig.

Lapped (Half Blind) Dovetails

The range of five cutters is used to create five different lapped dovetail pin and tail depths.

This also means that all lapped dovetail tail work pieces can be mounted in the same fixed position in the jig (the front channel). It also means the jig does not require any adjustment for dovetail size or work piece thickness.



OPERATION



Making a Drawer



The exercise in this manual takes you through the process of constructing a basic drawer. Two types of dovetails are used in this drawer example, lapped dovetails, and through dovetails.

Lapped Dovetails

Lapped Dovetail Pins and Tails are cut with a dovetail cutter.

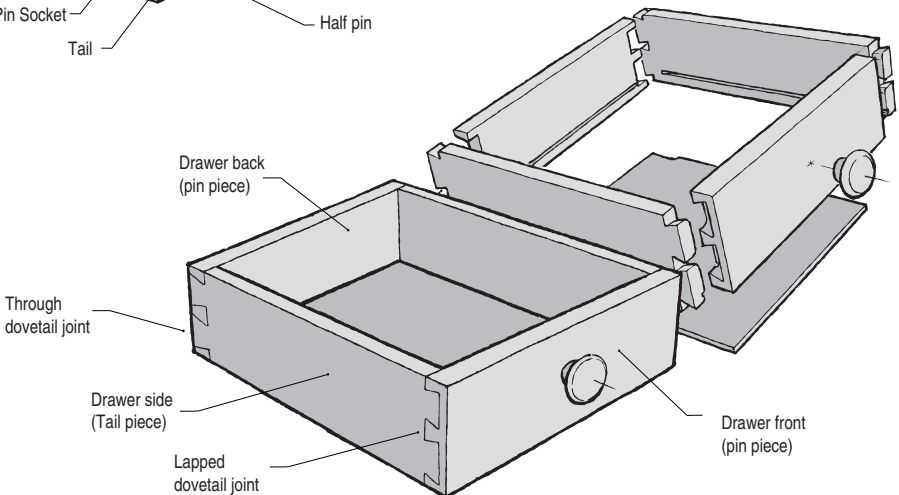
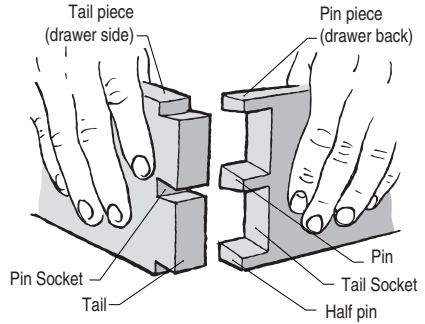
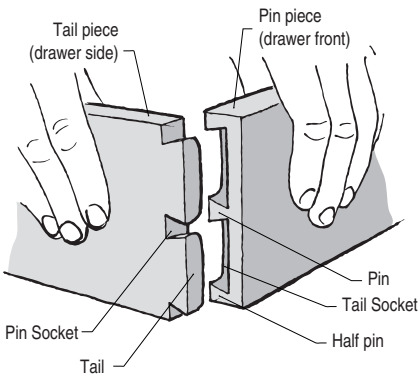
Use lapped dovetails to join the drawer front to the drawer sides.

Through Dovetails

Use through dovetails to join the drawer sides to the drawer back.

Through Dovetail Pins are cut with a straight cutter.

Through Dovetail Tails are cut with a dovetail cutter.

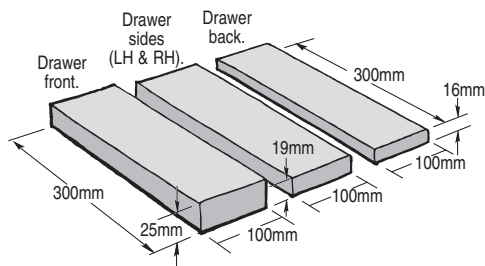


You will need

- One 7° dovetail cutter.
- One straight cutter.
- 11.1mm guide bush.
- Three 7° through dovetail pin guides.
- Three lapped pin guides.
- Three tail guides.

Preparing Work Pieces

Prepare several softwood work pieces to the following dimensions:



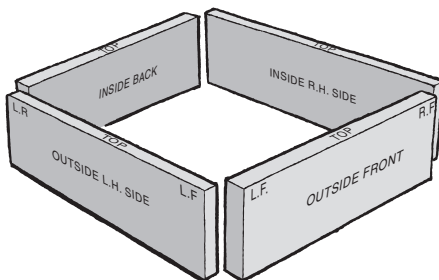
- Drawer fronts 25mm x 100mm x 300mm long
- Drawer sides 19mm x 100mm x 300mm long
- Drawer backs 16mm x 100mm x 300mm long

Work pieces must be dead square on the ends, flat in all directions (not warped), and even thickness across the board. Make all the dimensions exactly as specified.

To aid positioning of your router when cutting you may wish to extend the pencil marks to the rear of the jig using a small square.

Marking Work Pieces

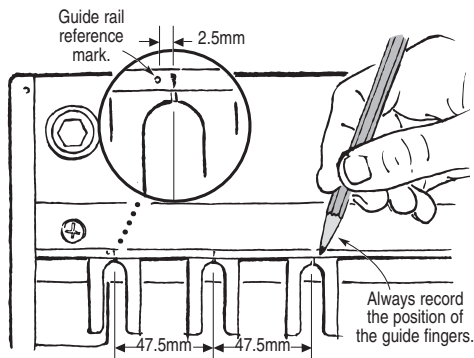
Cut the work pieces to size and lay them out the way they will assemble into a drawer. Mark the insides, the outsides, the front, sides and rear, the tops, the bottoms, and the lefts and rights.



Laying Out The Joint

When you cut the joints for the basic drawer, install all the guide fingers in the positions shown below. Make sure the first guide finger is installed 2.5mm away from the reference mark on the guide rail. The second guide finger is installed 47.5mm away from the first guide finger, not the reference mark. The third guide finger is installed 47.5mm away from the second guide finger.

Record the guide finger positions on the guide rail with a pencil.

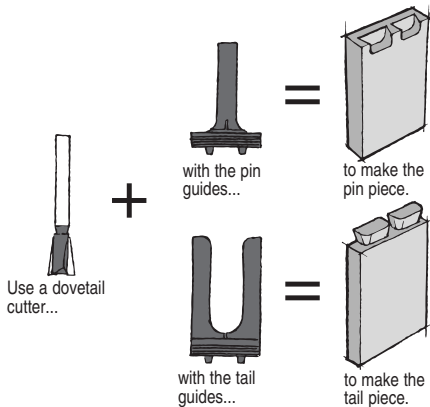


LAPPED DOVETAILS OVERVIEW

You will need

- Lapped dovetail pin guides.
- Tail guides.
- One dovetail cutter.
- 11.1mm guide bush.
- Test pieces.
- Use a pencil to mark the positions of the guide fingers.

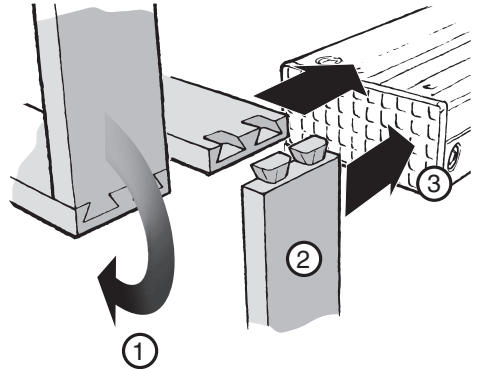
Cutters and Guide Fingers



Rebated drawer fronts can be constructed to conceal the gap between the drawer and the carcass.

Work Piece Orientation

Lapped dovetail work pieces must be correctly oriented for clamping in the jig. Imagine the joint is assembled in this position (1) relative to the jig. Swing the tail piece out 180° (2). This shows you the correct way to orient each work piece in the jig (3). For clarity, the work pieces are shown with cut joints.



LAPPED DOVETAILS

1. Lapped dovetail pins and tails are both cut with the same dovetail cutter. A straight cutter is not required.
2. Minimum pin piece (drawer front) thickness is 9.5mm and maximum thickness is 25mm. Use the parallel-sided pin guides to cut the tail sockets that form the pins.
3. Minimum tailpiece (drawer side) thickness is 3.2mm and maximum thickness is 25mm. Use the fork-shaped tail guides to cut the tails.
4. The five dovetail cutters make possible five pin/tail depths from 6.35mm up to 19mm in convenient 3.2mm cutter depth increments. Select a cutter by its depth. Dovetail cutter angle is incidental.
5. Set the cutter depth to its full incremental length, plus 14mm allowance for the thickness of the guide fingers. Keep the same cutter depth setting for pins and tails.
6. Control the joint fit by making fine adjustments to the cutter depth.

**LAPPED DOVETAILS
STEP BY STEP**



STEP 1 - Select the dovetail cutter

Select a dovetail cutter length that's at least 2.2mm less than the thickness of the drawer front. If your drawer front features a rebate, select a cutter that will miss the rebate.

Set the cutter to the depth indicated in the right hand column. The cutter depth setting includes 14mm for the thickness of the guide fingers.

Drawer front thickness range	Suggested cutter (depth x angle)	Set the cutter to this depth
25mm max	19mm x 7°	33.5mm
19 - 25mm	16mm x 9°	28.5mm
15.8 - 22mm	12.7mm x 11°	27mm
12.7 - 19mm	9.5mm x 14°	23.5mm
9.5 - 15.8mm	6.3mm x 20°	20.5mm

Cut a test joint first and adjust the cutter up or down to find the correct cutter depth setting.

Note, the steeper the cutter angle, the more sensitive it is to cutter depth adjustments.

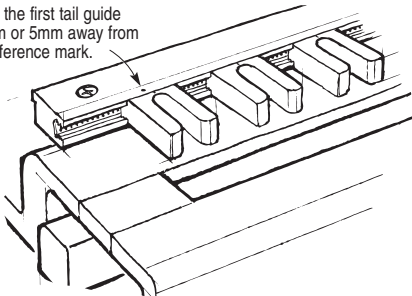
If building the sample drawer, select the 19mm x 7° cutter and set it to 32mm depth.

STEP 2 - Install the tail guides

Install a row of tail guides on the guide rail.

If you're building the sample drawer, refer to page 16 for the tail guide spacing.

Install the first tail guide 2.5mm or 5mm away from the reference mark.

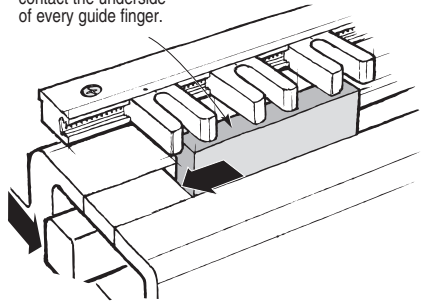


**STEP 3 - Clamp the tail piece
(Drawer Side)**

Clamp the tail piece:

- Against the front channel.
- The outside surface of the drawer facing away from you.
- Firmly up against the side fence at the left hand end of the jig.
- Firmly up against the undersides of all the guide fingers.

The work piece must contact the underside of every guide finger.

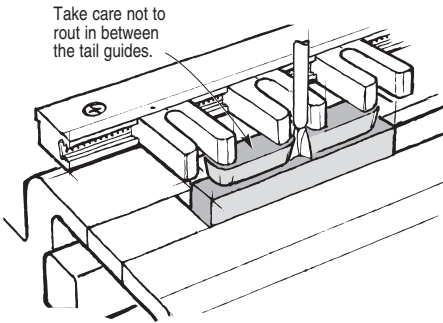


If you're building the sample drawer, make sure the first tail guide is 2.5mm away from the reference mark, refer to page 17 for the tail guide spacing.

STEP 4 - Routing the tail piece 

- Take a first cut right across the width of the tailpiece from left to right. Keep the guide bush in contact with the front guide rail at all times.
- Without lifting the router, return to the left hand end of the jig. Maintain contact with the front guide rail.
- Work from left to right. Rout in between the forks. Reduce the feed rate when breaking through the backs of the sockets. Take care not to rout in between the tail guides. You can install tail guide spacers to avoid any errors.

Use a pencil to mark the positions of the tail guides on the guide rail before removing the tail guides and the tailpiece.

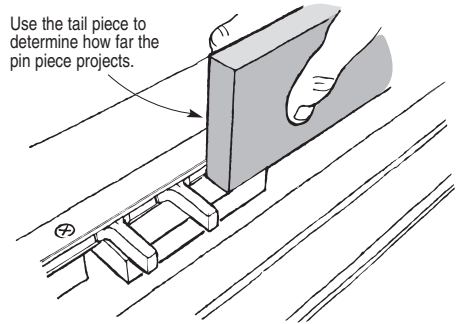


STEP 6 - Clamp the pin piece (Drawer Front)

Clamp the pin piece:

- Horizontally.
- The outside surface of the drawer facing down.
- Firmly up against the side fence at the end of the jig.
- Projecting past the guide rail by a distance equal to the thickness of the previously cut drawer side.
- Make sure there is no gap between the pin piece and the undersides of the pin guides.

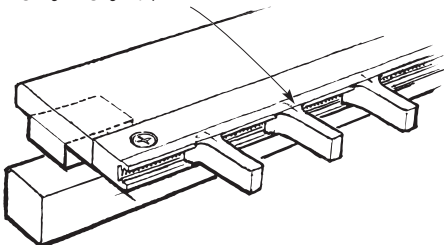
If you're building the sample drawer, the pin piece must project 19mm past the guide rail.



STEP 5 - Install the lapped dovetail guides

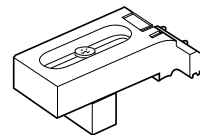
Install the pin guides in line with the pencil marks on the guide rail.

When you already have the pencil marks. You can snap the guide fingers up from below.

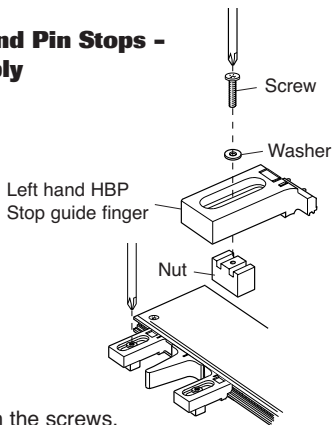


Lapped Pin Stops

Use a pair of Lapped Pin Stops Half Blind to automatically locate your pin piece in the correct position every time. Simply install them in place of the outer pair of pin guides and adjust them to the thickness of the mating tail piece. They work with all pin pieces, including rebated drawer fronts.



Half Blind Pin Stops - Assembly



1. Loosen the screws.
2. Install a pin stop at each end of your layout in place of the standard half blind pin guides. Install from below.
3. Install the component pin piece with the correct projection as shown in the DC400 manual for half blind joints
4. Slide the nut up against the pin piece and tighten the screw.

If the sockets splinter at the back (Break Out) see 'How To Reduce Break Out' page 31.

Lapped Dovetail Test Joints Quick Method

A quick method for making half blind dovetail test joints is to make end-on-end dovetails across a narrow board see page 29.

Recording Half Blind Dovetail Cutter Depth

Once you've determined the correct cutter depth on a half blind dovetail test joint, machine a rebate along a close grained hardwood test piece mounted in the horizontal clamping system, mark it with the cutter size, and keep it for future reference. Next time, use this test piece as an accurate depth gauge.

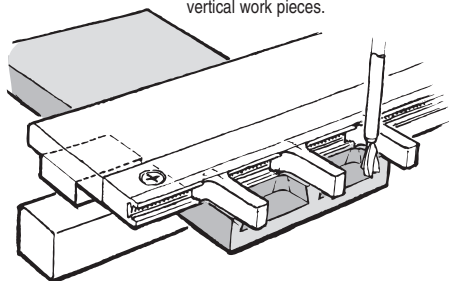
STEP 7 - Routing the pin piece

Work from left to right. Take roughing cuts first, then rout along the sides of the pin guides and along the guide rail, using gentle pressure with the guide bush.

Remove the pin piece and try fitting it to the tail piece. Refer to the rules below.

If you're having problems other than fit, refer to the troubleshooting section, on page 38 & 39.

Horizontal work pieces machine differently to vertical work pieces.



Rules for Adjusting Joint Fit

Adjust the cutter up or down for the correct joint fit

- If the joint is too loose, lower the cutter slightly and cut another test joint
- If the joint is too tight, raise the cutter and cut another test joint
- If the tail sockets have not been cut deep enough along the drawer front, re-install the pin piece as in step 6 but this time, have the work piece projecting slightly further out from the guide rail, and re-machine the tail sockets.



LAPPED PINS are clamped in the **HORIZONTAL** clamp.



LAPPED DOVETAILS are clamped vertically against the **FRONT CHANNEL**.



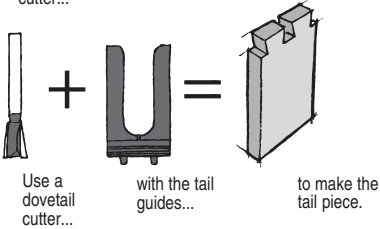
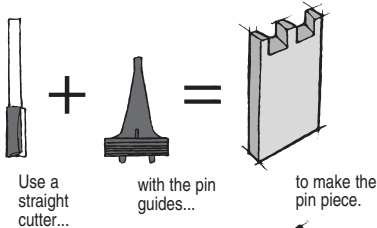
THROUGH DOVETAIL PINS and **TAILS** are clamped vertically against the **REAR CHANNEL**.

THROUGH DOVETAILS OVERVIEW

You will need

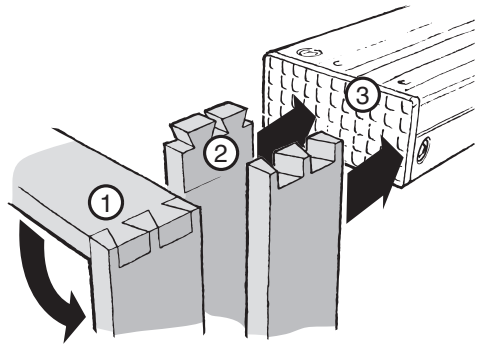
- Angled pin guides.
- Tail guides.
- One dovetail cutter.
- One straight cutter.
- 11.1mm guide bush.
- Test pieces (optional).
- A pencil to mark the positions of the guide fingers.

Cutters and Guide Fingers



Work Piece Orientation

Through dovetail work pieces must be correctly oriented for clamping in the jig. Imagine the joint is assembled in this position relative to the jig. Swing the tail piece down 90°. This shows you the correct way to orient each work piece in the jig. For clarity, the work pieces are shown with cut joints. Note, both work pieces are clamped against the rear channel.



THROUGH DOVETAILS

1. One dovetail cutter and one straight cutter are required.
2. Minimum pin piece (drawer back) thickness is 6.3mm, and maximum thickness is 19mm. Use the angled pin guides to cut the tail sockets that form the pins. Set the straight cutter depth to the thickness of the mating tailpiece, plus a 14mm allowance for the thickness of the guide fingers and a little extra for subsequent clean up.
3. Minimum tail piece (drawer side) thickness is 6.3mm and maximum thickness is 25mm. Use the fork-shaped tail guides to cut the pin sockets that form the tails. Set the dovetail cutter depth to the thickness of the mating pin piece, plus 14mm for the thickness of the guide fingers, plus a little extra for subsequent clean up.
4. Use an oversize or undersize straight cutter to make a fine adjustments to joint fit.
5. Raise or lower cutters to adjust joint flushness.

THROUGH DOVETAILS STEP BY STEP

STEP 1 - Select the dovetail cutter

Pin Piece Thickness	Dovetail Cutters				
	19mm x 7°	16mm x 9°	12.7mm x 11°	9.5mm x 14°	6.35mm x 20°
6.35mm min	OK	OK	OK	OK	Select
9.5mm	OK	OK	OK	Best	
12.7mm	OK	OK	Best		
16mm	OK	Best			
19mm	Best				

Five dovetail angles are possible, from 7° up to 20° in convenient 3.2mm cutter depth increments. For best results, select the shortest possible cutter, i.e., the cutter whose length is equal to, or slightly greater than the thickness of the pin piece. For example, select the 12.7mm (11°) cutter if the pin piece is 11mm thick.

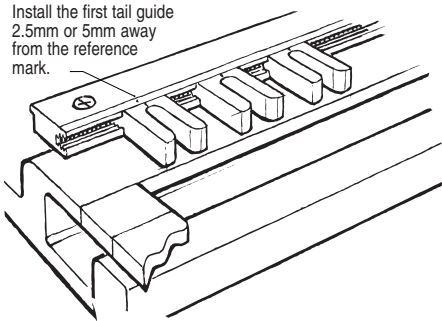
Adjust the cutter depth until it projects from the router base by a distance equal to the thickness of the mating pin piece, plus a 14mm allowance for the thickness of the guide fingers and a little extra for subsequent clean up.

Although through dovetails will likely require no adjustment for fit, you may want to cut a test joint the first time.

If you're building the sample drawer, select the 19mm cutter and set it to 30mm depth, plus 0.5mm for subsequent clean up.

STEP 2 - Install the tail guides

Install a row of tail guides on the guide rail.



If you're building the sample drawer, refer to page 16 for the tail guide spacing.

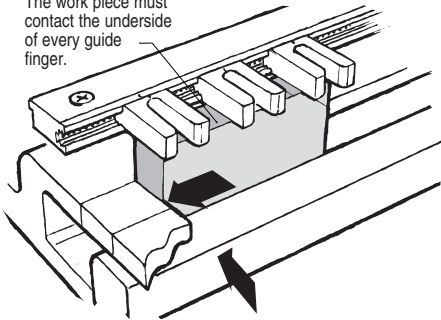
Choose the "Best" cutter if possible. For example, although the 19mm, 15.8mm, 12.7mm and 9.5mm cut length dovetail cutters could all be used to cut 9.5mm deep pin sockets, the 9.5mm cutter, unlike the others, will create a pin socket that's 6.3mm wide at it's narrowest point. This 9.5mm cutter will create a more slender and elegant pin profile than the others, and will make a stronger joint.

**STEP 3 - Clamp the tail piece
(Drawer Side)**

Clamp the tail piece:

- Against the rear channel.
- The outside surface of the tail piece facing away from you.
- Firmly up against the side fence at the left hand end of the jig.
- Firmly up against the undersides of all the tail guides.

The work piece must contact the underside of every guide finger.



If you're building the sample drawer, make sure the first tail guide is 2.5mm away from the reference mark.

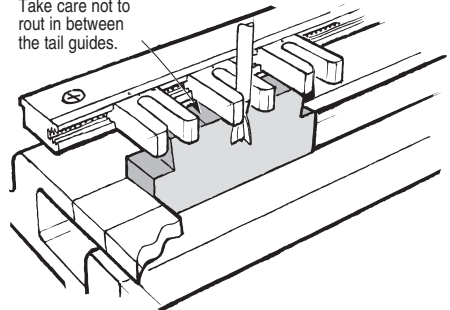
If the sockets splinter at the back (tear out) see "How To Reduce Break Out" page 31.

STEP 4 - Routing the tail piece 

Using the dovetail cutter and working from left to right, rout in between the forks, using gentle pressure against the guide fingers. Reduce the feed rate when breaking through the back of the sockets. Take care not to rout in between the individual tail guides. You can install tail guide spacers, as a preventative measure.

Use a pencil to mark the positions of the tail guides on the guide rail. Remove the tail guides and the tailpiece.

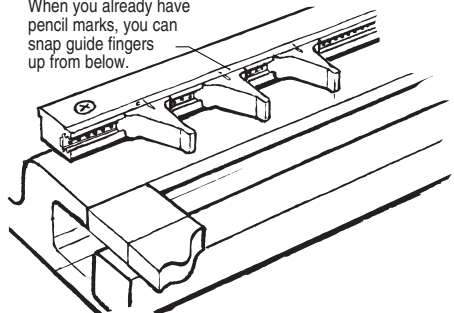
Take care not to rout in between the tail guides.



STEP 5 - Install the Through Dovetail pin guides

Install the angled pin guides in line with the pencil marks.

When you already have pencil marks, you can snap guide fingers up from below.



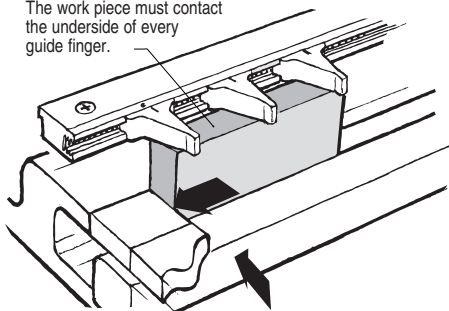
If you're building the sample drawer, use the 7° pin guides to match the 7° cutter.

STEP 6 - Clamp the pin piece (drawer back)

Clamp the tail piece:

- Against the rear channel.
- The outside surface of the drawer back facing towards you.
- Firmly up against the side fence at the left hand end of the jig.
- Firmly up against the undersides of all the guide fingers.

The work piece must contact the underside of every guide finger.

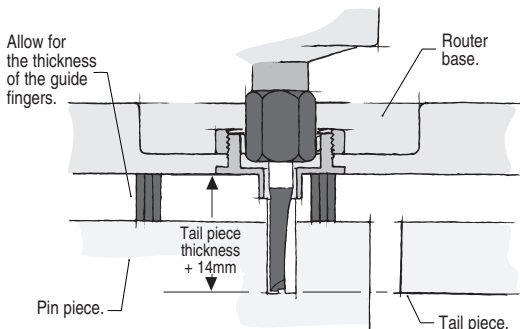


STEP 7 - Install the straight cutter

Adjust the straight cutter depth until it projects from the router base by a distance equal to the thickness of the tail piece, plus 14mm for the thickness of the guide fingers, plus 0.5mm for subsequent clean up.

If you're building the sample drawer, set the straight cutter to 33mm depth, plus 0.5mm for subsequent clean up.

This drawing shows portercable style guide bush and different height of guide finger/guide rail relationship.



STEP 8 - Routing the pin piece (drawer back)

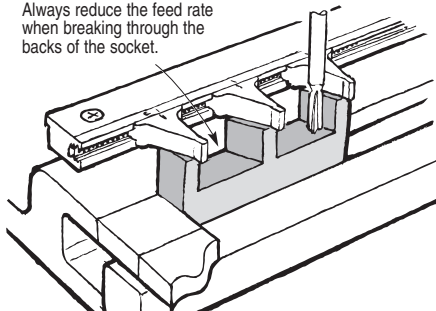


Working from left to right, take roughing cuts to remove most of the waste, then rout along the sides of the pin guides, using gentle pressure. Reduce the feed rate when breaking through the back of the sockets.

Remove the pin piece and try fitting it to the tail piece.

If you're having problems other than fit, refer to the troubleshooting section.

Always reduce the feed rate when breaking through the backs of the socket.



Adjusting joint fit

Through dovetail joints will not normally require adjustment for fit. However, fine adjustment may be necessary due to differences in fit between softwoods and hardwoods, variations in machined surface finish and a build up of tolerances in the jig, guide fingers, guide bushes and cutters;

- If the joint is too tight, use the oversize straight cutter. Carefully remount the pin pieces and remove more material.
- If the joint is too loose, use the undersize straight cutter to remove less material, and cut new pin pieces.
- If the pins are too proud, plane or sand them off after gluing, and next time decrease the straight cutter depth. Or, if necessary, cut a new pin piece. If the pins are below flush, increase the cutter depth, carefully remount the pin piece and cut deeper tail sockets.
- If the tails are too proud, plane or sand them off after gluing, and next time decrease the dovetail cutter depth. Or, if necessary, cut a new tail piece. If the tails are below flush, increase the cutter depth to form deeper pin sockets, and cut a new tail piece.

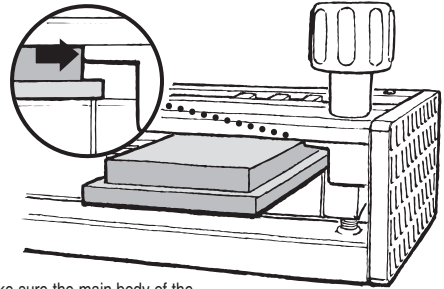
ADVANCED JOINERY 

The Trend jig is capable of much more than dovetails. Exercise your creativity to find new ways of putting the jig to work. The ideas on the following pages are meant to prompt you in the right direction, rather than provide you with detailed comprehensive instructions.

How To Cut Rebated Drawer Fronts

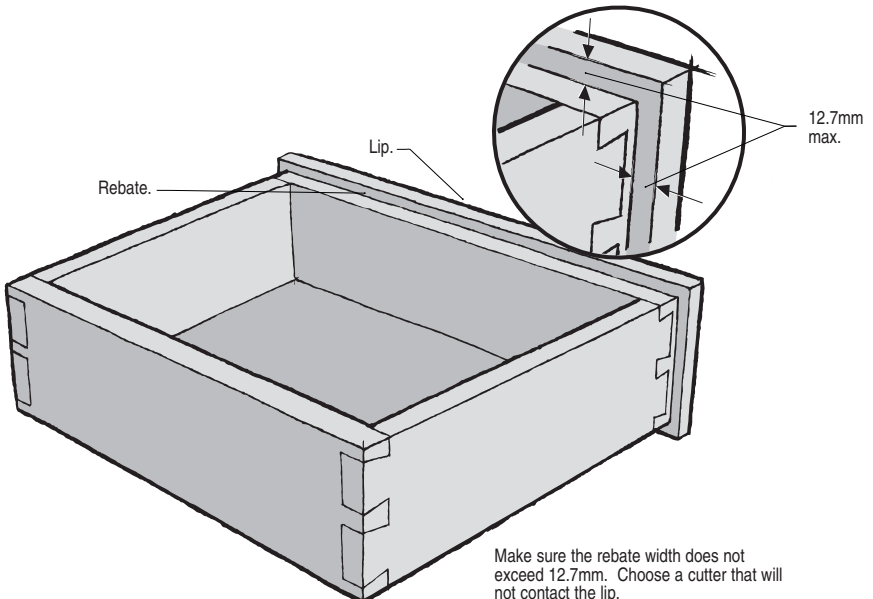
Rebated drawer fronts require no special set up, provided the rebate is 12.7mm wide or less, and the remaining lapped material is a minimum 6.3mm deep. Rebate thickness is influenced by the drawer front thickness and the dovetail cutter to be used.

Simply install the rebated drawer front in the horizontal clamp, face side down, the same way you would if the drawer front had no rebate at all. Note, it's the body of the drawer front that references against the side fence, not the rebate.



Make sure the main body of the drawer front is tight up against the side fence.

If the rebate is more than 12.7mm wide, the drawer front will be offset by the amount the rebate exceeds 12.7mm. You will need to insert a shim between the mating tailpiece and the side fence to bring it back in alignment with the offset drawer front. The thickness of the shim will equal the amount the rebate exceeds 12.7mm.

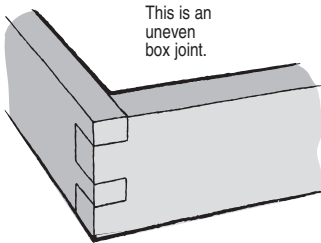


Make sure the rebate width does not exceed 12.7mm. Choose a cutter that will not contact the lip.

Uneven Box Joints

Uneven box joints can be made easily using the lapped pin and tail guides. The lapped pin guides will form pins approximately 9.5mm wide, and the corresponding tails will be approximately 15.8mm wide based on 25mm guide finger spacing. You will need a Trend 8.9mm straight box joint cutter Ref. 3/45. When you're cutting box joints with guide fingers, you do not need to offset one work piece.

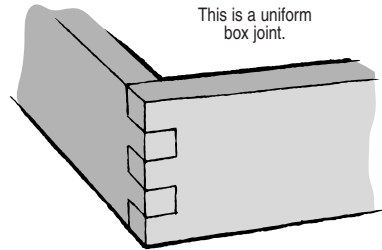
Always clamp box joint work pieces against the rear channel.



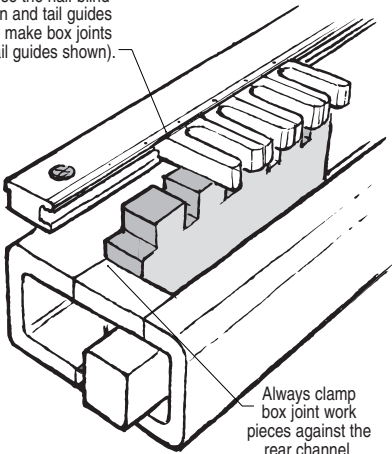
Uniform Box Joints

With a little time and effort, equal pins and tails are possible, from 9.5mm or greater.

First mark the layout on your work piece with a pencil. To make 12.5mm box joints, rout along the left side of a half blind pin guide, make a pencil mark on the guide rail, move the pin guide over one increment to the right, then rout along the right hand side to form a wider 12.5mm pin. Make another pencil mark.



Use the half blind pin and tail guides to make box joints (tail guides shown).



To rout the tails, install a tail guide at the first pencil mark, rout in between the fork, move the tail guide over to the next pencil mark, then rout in between the fork again to form the 12.5mm pin socket. For box joints greater than 12.5mm move guide fingers over more than one increment.

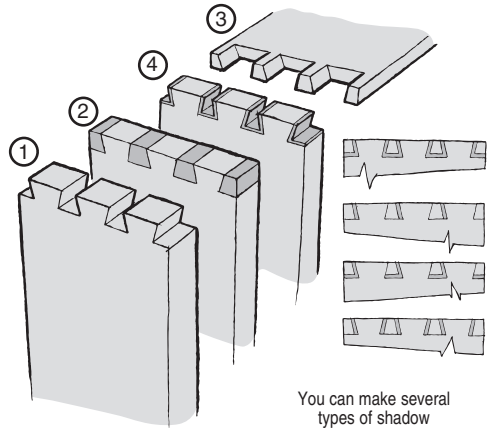
You can speed up the process by setting up another guide finger layout at the opposite end of the jig, based on the 'right-shifted' guide finger positions. You can also make box joints with variable spacing.

Shadow Through Dovetails

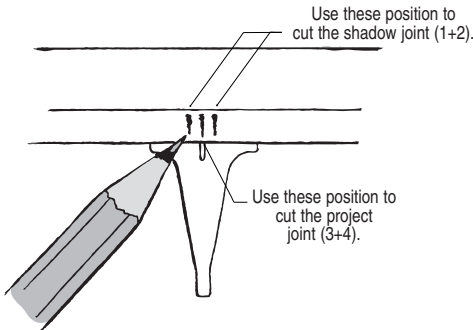
Shadow dovetails are especially easy on the DC400 jig because the incremental guide finger positioning is uniform and always fully repeatable.

They are made the same way as conventional dovetails, but in two steps, using a combination of lighter and darker wood. They're cut by offsetting the guide finger positions by, say, one increment and by using two levels of cutter depth. With some experimentation, several variations of shadow through dovetails are possible.

Draw the joint to scale on paper, then cut a test piece. The pin location must shift one 2.5mm increment to the left of the base position, then one 2.5mm increment to the right to make the 2.5mm shadows on either side of the pin. The cutter must be lowered, for equal thickness, 2.5mm to make the shadow at the bottom of the socket.



You can make several types of shadow through dovetails.



1. Start by cutting the shadow joint using a light colored project tail piece and a short "shadow pin piece" in darker wood, 2.5mm thicker than your final project pin piece.
2. When the glue has set, saw off all but the pins and take the waste dark wood back down to the surface of the tailpiece.
3. Cut your actual project pin piece.
4. Cut new pin sockets in the dark wood of the tailpiece to match.

Since the maximum pin piece thickness on any joint is 19mm and the project pin piece thickness likely 2.5mm less, the maximum project pin piece must be 16mm or less.

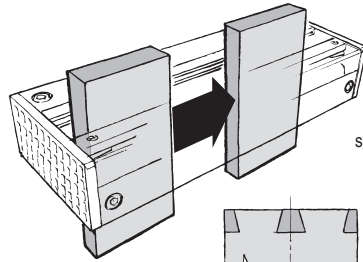
Asymmetrical Dovetail Layouts

Provided a guide finger layout is symmetrical about the centreline of the work piece, you can use the same layout at both ends of a work piece (for example, both ends of a drawer front).

An asymmetrical joint layout is one that is not symmetrical about the centerline of the work piece. In this case you will likely need L.H. and R.H. joints, for example, if the work piece is a drawer front. You will need to copy over a mirror image layout to the opposite end of the jig, then cut the L.H. joints at say, the L.H. end of the jig and the R.H. joints at the R.H. end of the jig.

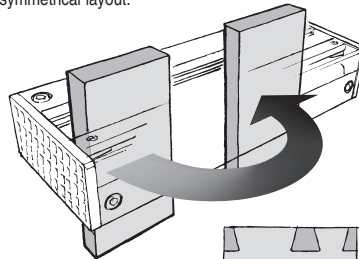
You can copy over joint layouts by measurement, but there is an easier way. Temporarily clamp a previously cut work piece in the far end of the jig and line up the guide fingers with the joint elements.

You can do this by sliding the previously cut work piece straight to the opposite end of the jig for symmetrical layouts, or by turning it around for asymmetrical layouts to create a mirror image.



This is a symmetrical layout.

Slide the workpiece over to replicate a symmetrical layout.



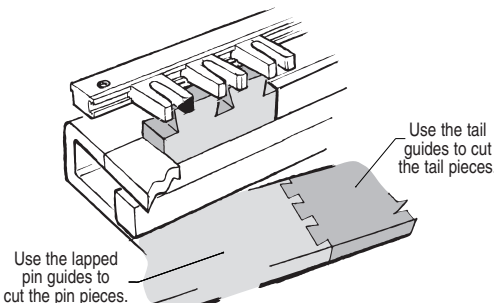
This is a Asymmetrical layout.

Rotate the workpiece on it's vertical axis to replicate over an asymmetrical layout.

End-to-End Dovetails

End-to-end dovetails work on the same principal as half blind dovetails. The only difference is that both work pieces are clamped one at a time, vertically against the rear channel. Fit is controlled by cutter depth.

End-to-end dovetails offer a decorative way to join short boards together to make longer boards. They're also a fast way to cut test pieces for conventional half blind dovetails.



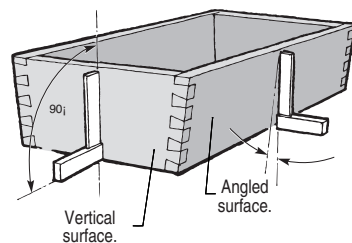
Caution - too great an angle will create short grain. Cut test pieces first.

Angled Dovetails

You can make an interesting variation of the standard dovetail by angling one work piece.

The wooden box shown below is shaped like a typical planter with the two ends vertical and the two long sides angled outward from the base. At the corner joint one piece is vertical and the other is angled outwards. Therefore, only one of the boards that forms the joint will be mounted in the jig at an angle. The other board must be mounted square.

Make up angled and straight-sided shims as required to ensure accurate positioning and repeatability. Make them thinner than your work piece. Shape the angled fences installed in the vertical clamping system so they're trapped and located vertically for accurate reference. Do the same for the horizontal fences.



ADVANCED TIPS

How To Vary Pin Width

The guide fingers normally cut 12.7mm x 6.3mm pins, meaning they are approximately 12.7mm wide at the widest point, and approximately 6.3mm wide at the narrowest point. However, you can cut pins that are wider by 2.5mm increments. Try a test joint first.

For example, to form a 15.8mm x 9.5mm pin, simply rout along the L.H. side of the pin guide, move the pin guide to the right one increment, then rout along the R.H. side of the pin guide. Make two corresponding pencil marks on the guide rail. Install the tail guide on one pencil mark, then on the other to cut a matching pin socket.

You can also create very slender 9.5mm x 2.5mm pins by moving the pin guide closer to the first cut by one increment. However, in this case you will have to cut the pin sockets by hand because the pin profile is smaller than the dovetail cutter profile.

Half Pins

Most dovetail joints begin and end with a half pin, not a half tail. Half pins should be a little wider than one half of a full pin for reasons of strength and appearance. Position the first and last guide fingers (which form the half pins), one or two increments (2.5mm or 5mm) in from the edge of the work piece.

A Common Problem With Joint Fit

Check the joint elements immediately after machining, before removing the work piece. Run your finger across all the surfaces to feel for bumps where the guide bush may have momentarily lost contact with the guide finger or guide rail. Re-machine if necessary.

Joint Layout

You will find the jig easier to use if you cut all your work pieces in 2.5mm increments. Sometimes, the number of increments won't divide up the way you want them, or you may not be able to find a central pin position when you have an odd number of pins. This is not a

problem. Simply try different layouts, and add or remove pins until you achieve an attractive layout. You can make one pin thicker by 2.5mm. you can make an asymmetrical layout, or you can be creative and group the pins in pairs. Another method could be to make one half pin thicker than the other, and plane it off afterwards.

Clamping

Avoid over clamping and never store the clamping system under pressure. It is not necessary to apply more than 5.Nm of torque to clamp a work piece. Using the knob, the average person can generate 5.Nm with one hand, and 6.5.Nm. with two hands. Applying 10.Nm of torque will damage a softwood work piece. Try clamping a waste piece progressively tighter until it does not move, and remember the amount of torque to apply next time.

Never use a hex key in place of the clamp knob. Damage will result if the torque exceeds 22.Nm

Always the clamp knob before routing.

Joints That Fit Too Tight

Smaller joints should fit together with heavy finger pressure, larger joints with light impact. If a joint is too tight, consider the following:

You can force an excessively tight joint together by crushing the fibers, but you risk splitting off a half pin, especially if the wood has weak grain. Also, if a joint is too tight, adhesive will be squeezed out during final assembly, weakening the bond.

When assembling a joint or pulling it apart, don't 'wiggle' it. Keep both work pieces straight and at right angles to each other.

How To Duplicate Joint Layouts

You can create identical guide finger layouts at the opposite end of the jig, or on a separate jig by using a previously cut work piece as a template.

If you need to create a mirror image of an asymmetrical joint layout, turn the previously cut work piece 180° on its vertical axis before clamping it and using it as a template.

How To Cut Joints With Different Width Work Pieces

Sometimes a pin piece is a different width to the mating tailpiece. If one edge of the joint is flush, then reference these edges against the side fence. If neither edge is flush, you will need to shim one work piece. Alternatively, cut all the tail pieces first, then copy the whole guide finger layout over to the left or right by an amount equal to the difference in width, then cut all the pins without the need for a shim.

How To Reduce Break Out

Dull cutters, weak grain, incorrect cutter speed, and excessive feed rate are the main contributors to the break-out experienced with routers. Cutter feed rate is learned by feel, and by trial and error. If you have a variable speed router, set the RPM to between 18,000 and 24,000 for best results. But you will still experience tear out with some varieties of timber.

The best way to reduce break-out at the back of vertically clamped work pieces is to install a waste back-up board in the horizontal clamp, tight up against the back of the work piece. It can be reused on the same joint layout many times. You can also use a horizontally clamped back-up board to minimize vibration when routing thinner work pieces. You can also mount a board vertically in front of through dovetail work pieces, and behind lapped tail pieces. The rule is, the board must always contact the clamp tube, not a channel, and the combined board and work piece cannot exceed the work piece thickness capacity of the jig.

Practicing the right routing technique will also help. To get better results, make the first cut very lightly from right to left. Take roughing cuts without breaking through the back of the sockets. Keep the guide bush slightly away from the guide surfaces. Reduce the feed rate before breaking carefully through the backs of the sockets. Finally, make a fine finishing cut with light pressure against the guide surfaces.

More experienced router users may wish to use a back cutting technique to reduce break out. To do this on a through dovetail pin piece, make the first cut lightly from right to left, and then remove most of the tail socket material by routing from

left to right. Then break through to the back of the socket on the left side, and rout across the back of the socket from left to right. Be very careful when back cutting. Grip the router very firmly, and take light cuts, because the cutter may snatch. A heavier router helps reduce this.

If a through dovetail joint layout is exactly symmetrical, and you are working accurately, you can mount the tail piece with the outside surface of the drawer towards you instead of away from you, so most of the "tear-out" will be on the inside of your project. An asymmetrical tailpiece can also be routed backwards by creating a mirror image layout at the opposite end of the jig.

How To Improve Productivity

Some suggestions for improving productivity:

If you have several joints to cut, cut all the tail pieces first, then cut all the pin pieces.

Two through dovetail tail pieces 12.7mm thick or less can be cut at the same time.

Prepare a piece of close grained hardwood. Install it in the horizontal clamp and rout across it when you've determined the correct half blind cutter depth for a particular cutter. Mark the cutter sizes on it and keep it as a depth gauge.

If your work piece width is less than half the width capacity of the jig, use a previously cut pin piece to copy the guide finger layout over to the opposite end of the jig to create an identical tail layout. This will save having to change guide fingers. But more importantly, in the case of lapped dovetails that are less than half the width capacity of the jig, it will allow you to cut the pin piece and the tail piece in a single pass, using both clamping systems and two guide finger layouts.

Other Uses for the Jig

Use either clamping system as a horizontal or vertical vise for other operations.

Use both clamping systems to hold two work pieces at right angles for accurate alignments, such as dowel drilling.

MAINTENANCE

The jig has been designed to operate over a long period of time with a minimum of maintenance. Continual satisfactory operation depends upon proper tool care and regular cleaning.

Cleaning

- Regularly clean the jig with a soft cloth.
- Ensure clamping surfaces on cutter and collet are cleaned to remove dirt, grease, oil and water.
- Apply a rust protector to shanks. Do not use rust protector on ball bearing guides.

Lubrication

- Your jig requires no additional lubrication.
- Use a PTFE dry lubricant spray on the cutting tool to increase cutting edge life.

Storage

- Always return cutter to it's packaging after use.

ENVIRONMENTAL PROTECTION

Recycle raw materials instead of disposing as waste.

Packaging should be sorted for environmental-friendly recycling.

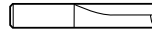
The product and its accessories at the end of their life should be sorted for environmental friendly recycling.

GUARANTEE

The jig carries a manufacturers guarantee in accordance with the conditions on the enclosed guarantee card.

ACCESSORIES

Straight cutters



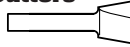
Diameter 7.9mm x 25mm cut

Ref. 3/42

Diameter 8.1mm x 25mm cut

Ref. 3/44

Optional Dovetail Cutters



Diameter 11.3mm x 99°

Ref. 31/31

Diameter 11.3mm x 101°

Ref. 31/32

Diameter 11.3mm x 104°

Ref. 31/33

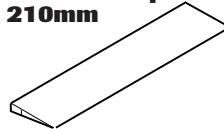
Diameter 11.3mm x 110°

Ref. 31/34

Cutter Set 7pc

Comprises: 31/30, 31/31, 31/32, 31/33, 31/34 and two 3/43
Ref. SET/DC1

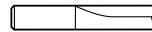
Tail Guide Spacer 210mm



Can be cut down to act as a spacer for wider spaced dovetails.

Ref. DC400/05

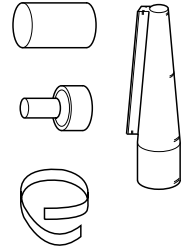
For Box Jointing



Diameter 8.9mm x 25mm cut

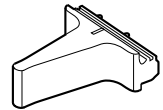
Ref. 3/45

Waste Collection Set



Dust spout size 25.4mm & 57mm
Ref. DC400/01

Pin Dovetail Guide Fingers



9° Pack of 5
Max material thickness 6.4mm-15.9mm.
Ref. DC400/P/09

11° Pack of 5
Max material thickness 6.4mm-12.7mm.
Ref. DC400/P/011

14° Pack of 5
Max material thickness 6.4mm-9.5mm.
Ref. DC400/P/14

20° Pack of 5
Max material thickness 6.4mm.
Ref. DC400/P/20

Accessory Kit

Comprises: Waste collection set, cable support, 9 pcs guide fingers for 9°, 11°, 14° and 20° dovetails, lapped pin stops, tail guide spacer and 7pc cutter set
Ref. DC400/02

DC400 SPARE PARTS LIST			v2.0 12/2006
No.	Qty.	Desc.	Ref.
1	1	Dovetail Cutter 7° x 11mm Dia	31/30
2	1	Two Flute 8.0mm Dia x 26mm Cut	3/43
3	1	Common Tail Guide Set (5pcs)	DC400/03
4	1	Lapped Dovetail Guide Set (5pcs)	DC400/04
5	1	Tail Guide Spacer	DC400/05
6	1	Window	DC400/06
7	1	Rear Guide Rail Assembly	DC400/07
8	1	Knob	DC400/08
9	1	Front Guide Rail Assembly	DC400/09
10	4	Machine Screw Csk M5 x 20mm Phillips	WP-SCW/86
11	4	Machine Screw Csk M6 x 30mm Phillips	WP-SCW/76
12	1	7° Pin Through Dovetail Set (5pcs)	DC400/P/07
13	1	Guide Bush 11.1mm Dia	GB/111
13A	1	Lapped Dovetail Pin Stops (pair)	DC400/10
14	2	Machine Screw Csk M5 x 8mm Slot	WP-SCW/09
15	1	Manual	MANUAL/DC400
WASTE COLLECTION DC400/01			
16	1	Waste Collection Set	DC400/01
ACCESSORY KIT DC400/02			
17	1	Accessory Kit 1/4 Shank	DC400/02
	0	Accessory Kit 8mm Shank	DC400/02X8MM
18	1	Plastic Case 8pc 1/4 Shank	CASE/8X1/4
	0	Plastic Case 8pc 8mm Shank	CASE/8X8MM
1	1	Dovetail Cutter 11.3mm Dia x 97°	31/30
19	1	Dovetail Cutter 11.3mm Dia x 99°	31/31
20	1	Dovetail Cutter 11.3mm Dia x 101°	31/32
21	1	Dovetail Cutter 11.3mm Dia x 104°	31/33
22	1	Dovetail Cutter 11.3mm Dia x 110°	31/34
2	2	Straight Cutter 8.0mm Dia x 26mm Cut	3/43
5	1	Tail Guide Spacer	DC400/05
23	1	11° Pin Through Dovetail Set (5pcs)	DC400/P/11
24	1	9° Pin Through Dovetail Set (5pcs)	DC400/P/09
25	1	14° Pin Through Dovetail Set (5pcs)	DC400/P/14
26	1	20° Pin Through Dovetail Set (5pcs)	DC400/P/20
27	1	Lapped Dovetail Pin Stops (pair)	DC400/10
ACCESSORY PIN GUIDES			
12	1	7° Pin Through Dovetail Set (5pcs)	DC400/P/07
23	1	9° Pin Through Dovetail Set (5pcs)	DC400/P/09
24	1	11° Pin Through Dovetail Set (5pcs)	DC400/P/11
25	1	14° Pin Through Dovetail Set (5pcs)	DC400/P/14
26	1	20° Pin Through Dovetail Set (5pcs)	DC400/P/20
27	1	Lapped Dovetail Pin Stops (pair)	DC400/10

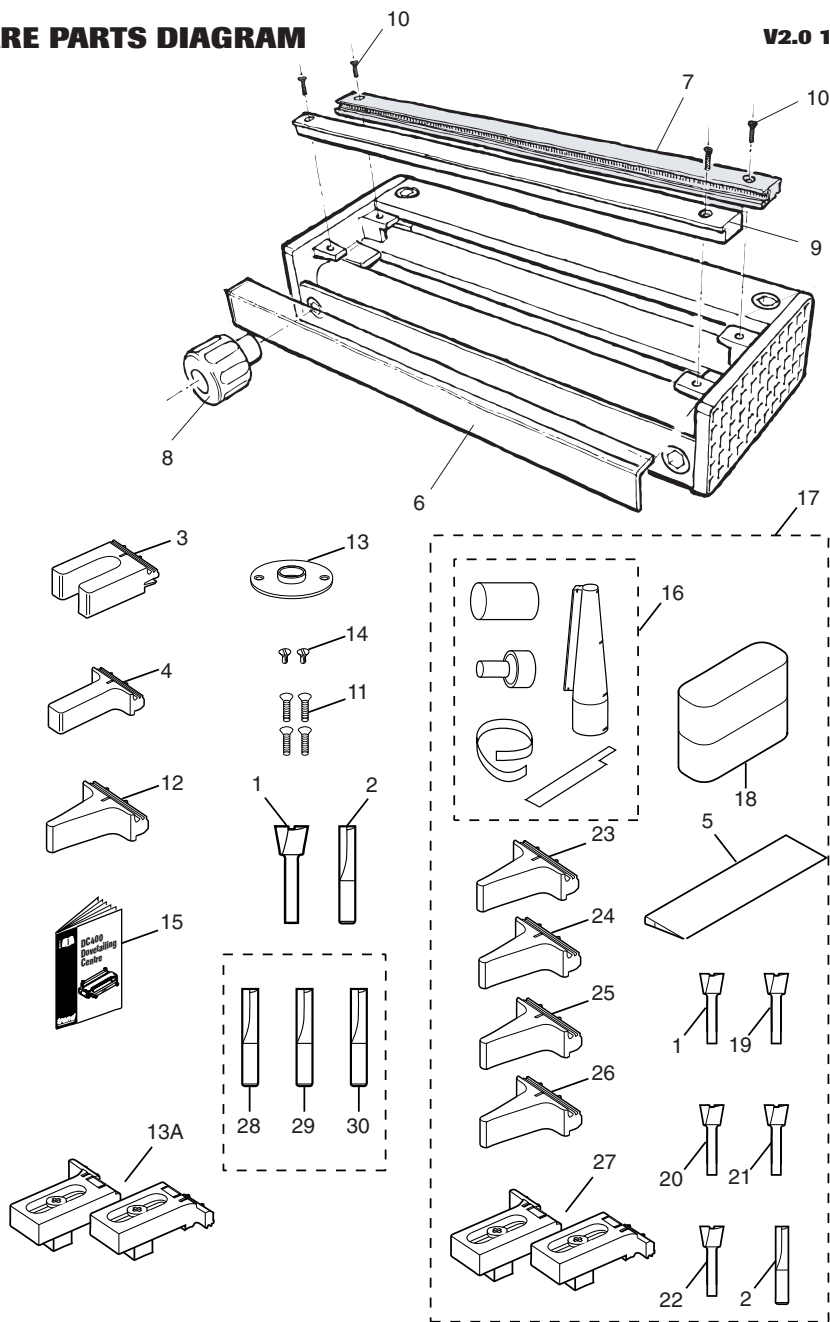
DC400 SPARE PARTS LIST

v2.0 12/2006

No.	Qty.	Desc.	Ref.
ACCESSORY CUTTERS			
28	1	Straight Cutter 7.9mm Dia x 26mm	3/42
29	1	Straight Cutter 8.1mm Dia x 26mm	3/44
30	1	Straight Cutter 8.9mm Dia x 26mm	3/45
31	1	7 Piece Dovetail Centre Cutter Set	SET/DC1
CUTTER CASE			
18	1	Plastic Case 8pc 1/4 Shank	CASE/8X1/4
18	0	Plastic Case 8pc 8mm Shank	CASE/8X8MM

SPARE PARTS DIAGRAM

V2.0 12/2006



TROUBLE SHOOTING

Fault	Cause	Remedy
<p>Dovetails are a consistent, progressively looser (or tighter) fit across the width of the work piece.</p> <p>Joint elements consistently and progressively project further beyond the surface across the width of the work piece.</p>	<ul style="list-style-type: none"> ■ One work piece was not parallel with the guide rail. ■ Work piece was not contacting the undersides of all the guide fingers. ■ Work piece slipped in the clamping system while you were routing. ■ Waste was trapped between a work piece and a clamping surface or guide finger. ■ A guide finger was not properly seated. ■ The cutter was loose in the collet. ■ Work piece was not an even thickness across the board. 	<ul style="list-style-type: none"> ■ Keep the jig clean and free of excessive wood waste. ■ Make sure the work piece is tightly clamped and snug up against the guide fingers. ■ Make sure all guide fingers are properly seated. ■ Make sure the cutter is tight in the collet. ■ Make sure work pieces are even thickness.
<p>One joint element is offset 2.5mm or 5mm from its corresponding socket.</p>	<ul style="list-style-type: none"> ■ Guide finger was installed in an incorrect position. 	<ul style="list-style-type: none"> ■ Position the guide finger correctly and cut a new work piece.
<p>When assembled, one work piece is laterally offset against the other.</p>	<ul style="list-style-type: none"> ■ One or both work pieces were not square on the end. ■ One work piece was not up against the side fence. ■ Symmetrical tail piece is assembled backwards. 	<ul style="list-style-type: none"> ■ Make sure work pieces are square. ■ Make sure work pieces are tight against the side fence. ■ Assemble joint correctly.
<p>The half pin on the end splits away when assembling the joint.</p>	<ul style="list-style-type: none"> ■ The half pin is too narrow and therefore too weak. ■ The joint is too tight. 	<ul style="list-style-type: none"> ■ Make the half pin thicker. ■ Adjust the joint fit.
<p>The cutter tears out wood at the fronts, backs and sides of the sockets.</p>	<ul style="list-style-type: none"> ■ Dull router bit. ■ Feed rate too high. ■ Sometimes the result of normal 'up-cutting'. Some species of wood are more prone to tear out. 	<ul style="list-style-type: none"> ■ Replace the router bit. ■ Reduce the feed rate when breaking through. ■ See How To Reduce Break Out (page 33).

Fault	Cause	Remedy
The bottoms of the sockets are uneven.	<ul style="list-style-type: none">■ A guide finger is not seated horizontally and the router base is bumping over it.■ The router base is not perfectly flat.■ The router was allowed to lift from the jig.■ Guide rail mounting screw is not properly seated.■ The cutter is loose in the collet.■ The work piece is loose.	<ul style="list-style-type: none">■ Remove the guide finger. Clean waste off the guide finger and the guide rail, and replace the guide finger. If guide finger still sits high, check for damage. Replace guide finger and/or guide rail.■ Check the underside of the router base for flatness. Install a good quality after market router sub base.■ Always keep the router base in contact with the guide rails■ Make sure the guide rail screws, collet and work piece are tight.
The sides of the sockets are uneven.	<ul style="list-style-type: none">■ There's a corresponding bump on a guide finger.■ The guide bush was allowed to lose contact with the guide fingers.	<ul style="list-style-type: none">■ Keep the guide fingers free of wood waste and resin. Use a modeller's file to remove guide finger damage or injection molding flash.■ Stop the router and remove it from the jig. Run your finger over the sides of sockets before removing the work piece. Re-machine if necessary.
Cutter chatters and leaves a rough finish.	<ul style="list-style-type: none">■ Cutter is dull.■ Cutter is extended too far out from the collet.■ Feed rate is too high.■ Wood is very hard or very thin.	<ul style="list-style-type: none">■ Replace the cutter.■ Lower the collet so it's almost touching the guide bush.■ Reduce the feed rate.■ Use a vertical support board to support thin work pieces. Always mount this vertical support board in contact with a clamp tube, not a channel.

Fault	Cause	Remedy
Through dovetail joint is a loose fit.	<ul style="list-style-type: none"> ■ Undersize guide bush. ■ Oversize straight cutter. 	<ul style="list-style-type: none"> ■ Install a precision 11.1mm guide bush. ■ Install undersize Trend straight cutter. ■ Use only Trend cutters with a precision guide bush. Other cutters may not work with the jig.
Through dovetail joint is tight fit.	<ul style="list-style-type: none"> ■ Oversize guide bush. ■ Undersize straight cutter. 	<ul style="list-style-type: none"> ■ Install a precision 11.1mm guide bush. ■ Install oversize Trend straight cutter. ■ Use only Trend cutters with a precision guide bush. Other cutters will not work with the jig.
Lapped joint is tight fit, or won't go together.	<ul style="list-style-type: none"> ■ Cutter set too deep. 	<ul style="list-style-type: none"> ■ Decrease the cutter depth.
Lapped joint is a loose fit.	<ul style="list-style-type: none"> ■ Cutter not set deep enough. 	<ul style="list-style-type: none"> ■ Increase the cutter depth.
The angle of the through dovetail pin doesn't match the angle of the socket.	<ul style="list-style-type: none"> ■ The cutter angle and pin guide angle are not matched. 	<ul style="list-style-type: none"> ■ Match the angle of the cutter and the pin guide.
There's a gap between the joint elements on one lapped work piece and the corresponding sockets.	<ul style="list-style-type: none"> ■ One work piece was not tight up under the guide fingers, or the pin piece is warped and not touching the pin guides. ■ The cutter depth was changed between cutting pins and cutting tails. 	<ul style="list-style-type: none"> ■ Make sure both work pieces are in contact with the under sides the guide fingers ■ Cut the joint without changing the cutter depth setting between pins and tails. ■ Replace warped work pieces.
The depth of cut is not close to what it should be to get a half blind joint to fit.	<ul style="list-style-type: none"> ■ Use of incorrect cutter. ■ Use of incorrect guide bush. 	<ul style="list-style-type: none"> ■ Trend cutter geometry results in a predictable depth of cut. Some after market cutters may work with the jig, but depth of cut may be unpredictable.

INDEX STRIP ADJUSTMENT

The Index Strip

The index strip determines the position of the guide fingers and prevents them moving sideways. It slides into the rear guide rail and is crimped in place. Although it appears to be permanently fixed, in fact it can be adjusted, and it is surprisingly easy to do.

Why would I need to adjust the index strip?

- You want to increase or decrease the size of the half pin.
- You want to centre the index strip to a workpiece.
- You want to centre the index strip in the jig.

Directions

- Remove all the guide fingers and work pieces from the jig.
- Prepare a piece of hardwood, 19mm x 19mm x 610mm long. Also prepare another similar sized block of hardwood to use as a “striker”.
- Install one tail guide at the left end of the jig, close to the crimp.
- Rest the hardwood against the root of the tail guide, flat up against the rear guide rail.
- Being careful not to damage the rear guide rail, gently tap the hardwood block with the “striker” to cause the tail guide, and therefore the index strip, to shift sideways.
- Use measurement, or clamp in a test piece in the jig, to check the alignment. Repeat the process until the index strip is exactly where you want it to be.

Won't the index strip move as soon as I use the jig?

No, it won't shift after you've adjusted it because the friction between the guide rail and one guide finger is greater than the pressure you apply with the guide bushing.

Can the index strip get too loose?

If you make too many adjustments, the index strip may get too loose. Remove the guide rail from the jig and carefully reset the crimp with a blunt tool. If you remove the guide rail from the jig for any reason, always re-check the index strip alignment.

Can I fix the index strip in place permanently

We advise against this because it's permanent. But yes, you can apply one or two drops of cyano-acrylate adhesive (also known as Super Glue) to the crimp. Follow the adhesive manufacturer's instructions.

Notes

MANU/DC400 v3.0



RECYCLABLE

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