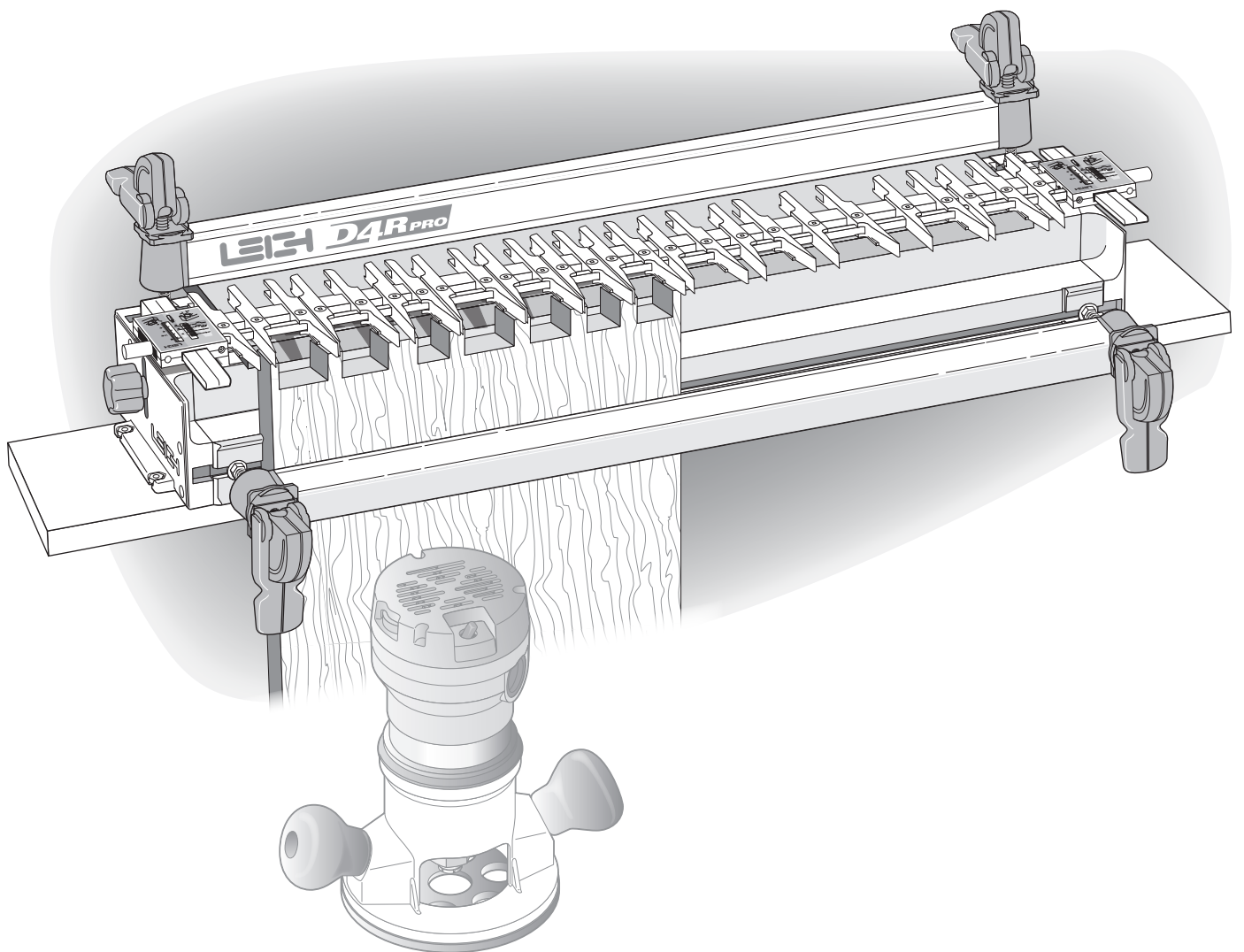


LEIGH **D4R_{PRO}** User Guide

For the Leigh D4R Pro 24" Dovetail Jig



Dedicated Customer Support
1-800-663-8932

LEIGH
Joining Tradition with Today

Preface	Standards, Accessories and More	iii
Chapter 1	Jig Assembly, Mounting, and Using The Clamps	1
Chapter 2	Adjusting the Finger Assembly.....	7
Chapter 3	The Leigh eBush and Optional Guidebushes	9
Chapter 4	Basic Jig Functions and Scale Modes	11
Chapter 5	Using Your Jig Safely	13
Chapter 6	Wood Preparation	15
Chapter 7	Router Preparation	17
Chapter 8	Through Dovetails	19
Chapter 9	Large and Small Through Dovetails	29
Chapter 10	Variably Spaced Half-Blind Dovetails	31
Chapter 11	Single Pass Half-Blind Dovetails	39
Chapter 12	Rabbeted Half-Blind Dovetails	45
Chapter 13	End-on-End Dovetails.....	47
Chapter 14	Asymmetric Dovetails	49
Chapter 15	Box Joints.....	53
Chapter 16	Sliding Dovetails.....	59
Chapter 17	Hints & Tips	65
Appendix I	Attaching the Leigh eBush to the Router.....	69
Appendix II	Bit Selection	71
Appendix III	Jig Parts	79
Appendix IV	Customer Support	83

Technical Bulletins

Downloadable pdfs are available at leighjigs.com on the Support page for these How To's and more for your Leigh D4R Pro jig:

- Angled Through Dovetails
- Jumbo Half-Blind Dovetails
- Inlaid Through and Half-Blind Dovetails
- Needle Pins
- Through Dovetail Pins At Less Than 1" Centers
- Shelf Holes and Notches
- Clamp Short Boards on your Leigh Dovetail Jig – Quick Method
- Clamp Short Boards on your Leigh Dovetail Jig – Adjustable Width

Your New Leigh D4R Pro Dovetail Jig

Congratulations! You now own the world's most useful and versatile dovetailing tool (and more!). The Leigh D4R Pro Dovetail Jig will help you rout an infinite variety of joints, and all of its major functions are described in detail in this guide. A very helpful DVD is also included, but the guide is essential reading.

We recommend that you first assemble and mount the jig, carefully following the instructions in the first section of the guide. Then read the rest of the guide, following along with the basic functions and principles of operation, before you try to do any actual joinery routing. By all means, rout a few practice joints in scrap boards before you use the jig to rout a precious hardwood workpiece!

If you have any questions that are not answered in this guide, please contact Leigh customer support:

Tel: 1-800-663-8932

Tech Support: help@leighjigs.com

For more contact info, see Appendix IV – Customer Support

But remember:

“If at first you don't succeed, read the instructions!”

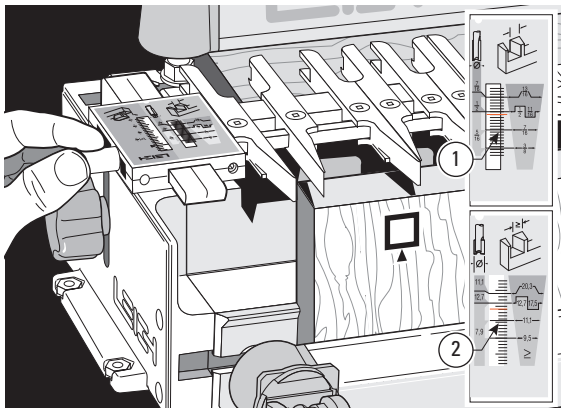
Important! Inches and Millimeters

The D4R Pro jig can be ordered in inch or metric versions. They're identical except for the calibration scales. This Leigh English-language user guide shows measurements in both inches and millimeters, with “inches” first, followed by “millimeters” in square brackets.

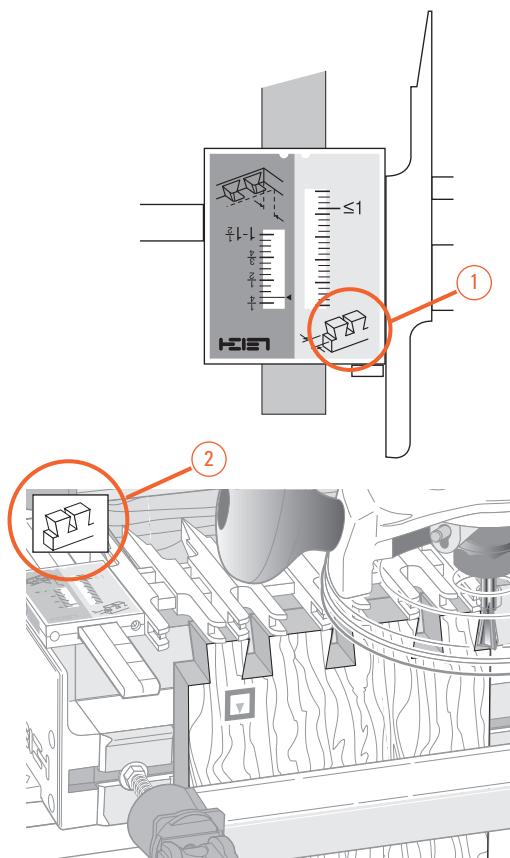
Example: $\frac{3}{4}$ " x $5\frac{1}{2}$ " x 8" [20 x 140 x 200mm]

Do not be concerned if the inch/millimeter equivalents are not exact. Just use the dimensions which apply to your jig.

To simplify the instructions, most jig illustrations show a jig considerably shorter than the standard 24" [610mm].



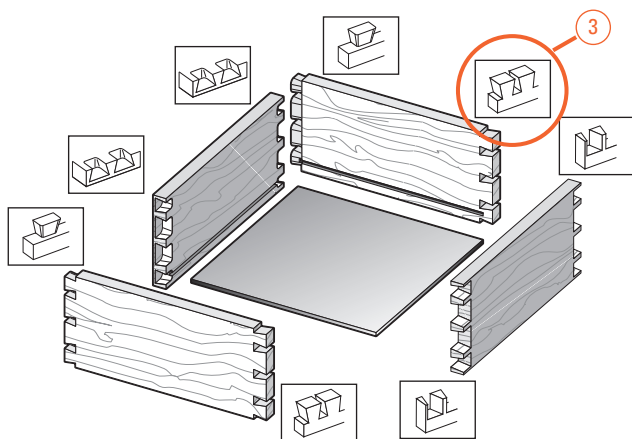
Where finger assembly scales overlay an illustration, the “inches” scale ① will be at the top, and “millimeters” scale ② at the bottom. Only the right hand “active” half of the scales are illustrated. For clarity, setting positions are indicated with a red line in the guide only. **On the jig, the lines are black.**



Glossary of Symbols

To help you understand the instructions and illustrations in this manual, we have used a number of international symbols, plus a few special ones of our own. They are all explained below. **You needn't worry about memorizing these symbols now**, because they are repeated quite frequently in this user guide, and you will soon get used to them.

The Leigh jig's guidefinger assembly can be in any one of four joint modes, depending on what type of joint and which part of the joint you are routing. Each finger assembly scale has its own mode icon ①, identifying the joint part being routed. You will also find the joint mode icon in the top left corner of most illustrations ②, indicating which finger assembly mode to use.



Sometimes a joint mode icon will be used to identify a board ③.

These are the four joint mode icons:



TD Tails
(tails for through dovetail joints)



TD Pins
(pins for through dovetail joints)



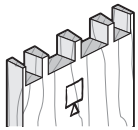
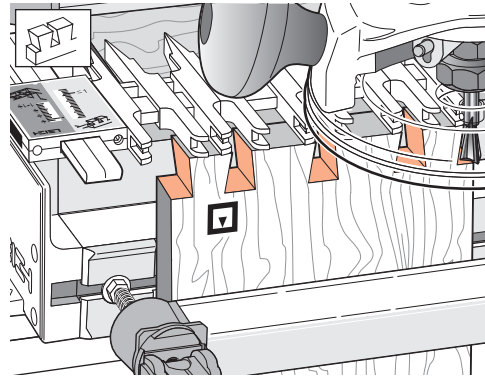
HB Tails
(tails for half-blind dovetail joints)




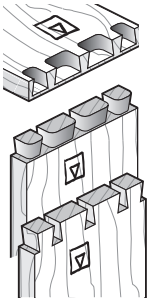
HB Pins
(pins for half-blind dovetail joints)


Which Way Round Should the Board Go?

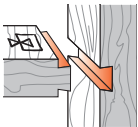
As virtually all dovetail joinery is used to make boxes, drawers and chests etc., we devised these simple (and hopefully intuitive) icons to indicate which side of a board faces inwards or outwards on the finished “box”, and which side of the board faces outward (toward you, the operator), when it is clamped in the jig.




⏏ This icon  indicates the “outside” of a board. All through dovetail pin boards are mounted in the jig with this “outside” face away from the jig (toward you, the operator).

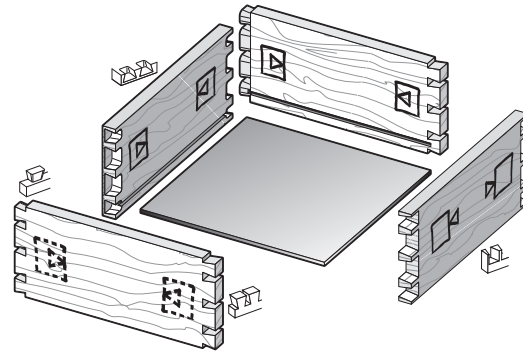


⏏ This icon  indicates the “inside” of a board. All half-blind pin and half-blind tail boards, and through dovetail tail boards, are mounted in the jig with the “inside” face away from the jig toward you, the operator.



⏏ This icon  indicates boards that are mounted both ways e.g. sliding dovetails and end-on-end dovetails.

⏏ Dotted line icons  indicate the “other” side of the board in the illustrations.



The following symbols indicate:



This edge against sidestop



This edge against sidestop



Sawcut allowance



Caution: use special care for this operation

①②③ Numbered References in text



Centerline of board or layout



Equals



Does not equal



Approximately

Add **Leigh Accessories** to make your jig even more versatile.



Finally, **Dust-Free Routing and Superb Router Support!**

A must-have! The VRS Vacuum & Router Support* is the ultimate dust and chip collector. As an added bonus, the VRS adds full width router support to your D4R Pro. It's simple to attach and the collector adapts to most popular vacuum hose sizes.

Item VRSD24

* US patent: USPN 7,507,060 B2
UK patent: GB2446909



Leigh Brand Bit Sets Offer Great Savings...and the Box Is Free!

Save over individual bit prices. Each top quality bit set includes a box with foam insert that accepts all shank sizes, and a handy bit chart in the lid to list out all the bit specs.

Item 1607-8 7-piece Bit Set

Item 2411-8 12-piece Bit Set

Item 5116-8 15-piece Bit Set



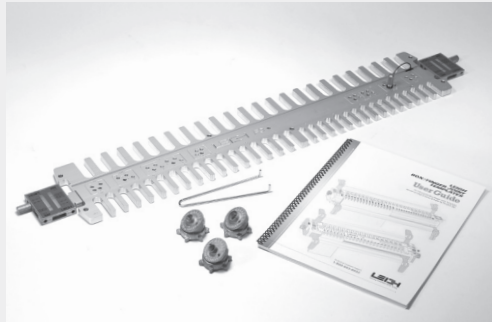
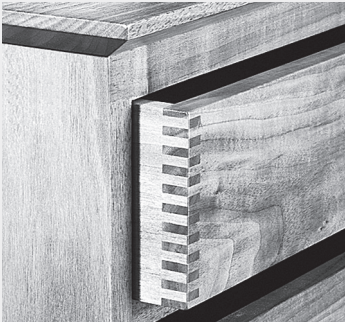
Combine the VRS with a Bit Set for Exceptional Savings!

The D4R Pro Accessory Kit is the best deal going. Enjoy great savings on the 12-piece Bit Set and even greater savings when you combine it with the VRSD24 Vacuum & Router Support.

Item ACD24

Visit www.leighjigs.com for more details

Optional Leigh Templates and Attachments

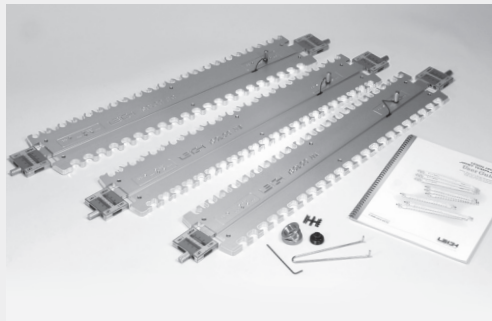
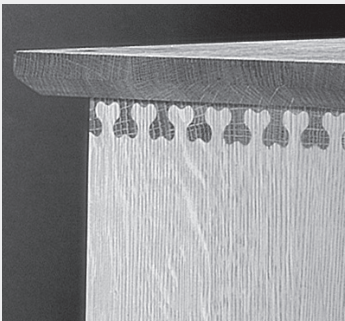


More Sizes of Box/Finger Joints

Add an F3 Finger Joint Template* to your D4R Pro Jig to make even more sizes of strong, pleasing and easy box/finger joints. Rout perfect joints in minutes, in sizes ranging from $\frac{3}{32}$ " to 1" [2 to 24mm].

Item F3 / F3M

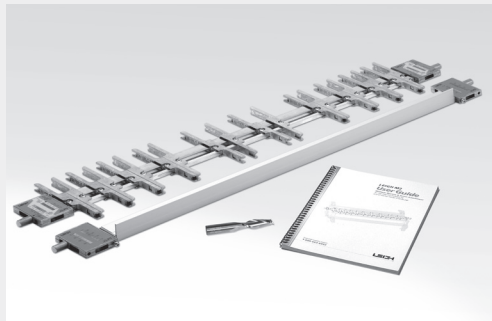
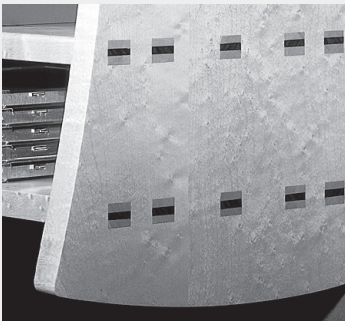
* US Patent No. 5,711,356
Canadian Patent No. 2,146,834
European Patent No. 0698458



Six Unique Isoloc Joints, Only from Leigh

The patented Isoloc joint gives any corner joint a very unique look. These one-of-a-kind patterns will really set your woodworking pieces apart from the rest. Great savings when you buy all three templates.

Items I1A, I1B, I1C and I13 (3 pack)



Classic Multiple Mortise & Tenon Joints that Last

The Leigh M2 Attachment is the only one of its kind. The multiple mortise & tenon joint is ideal for "shelf to upright" construction and produces extremely strong joints that stand the test of time.

Item M2-24 / M2M-24

Need a Helping Hand? Use Leigh Hold-Down Clamps

Leigh Hold-Down Clamps are tough, versatile and immensely strong! They employ proven cam-action technology developed for the award-winning Leigh D4R Pro and FMT/Pro. Bench clamps can be used in any size hole and surface clamps can be mounted on any flat surface, both on any angle. You can never have too many clamps!

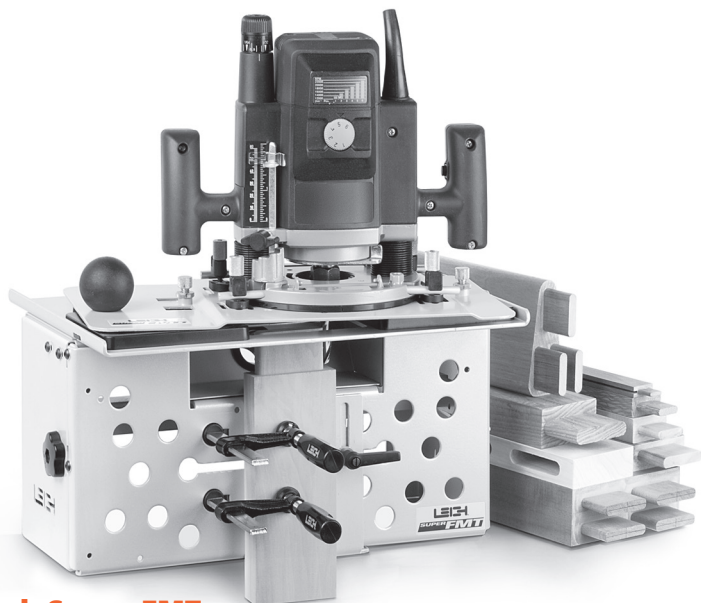
Item BHDC1 Bench Mount

Item SHDC1 Surface mount



Visit www.leighjigs.com for more details

Mortise & Tenon Joints **have never** been easier!



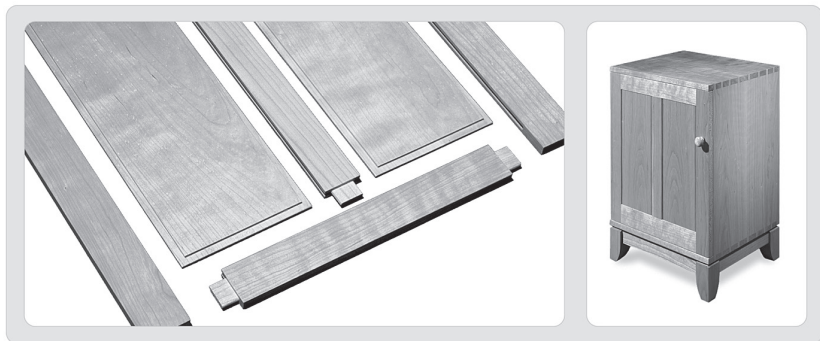
Leigh Super FMT
Mortise & Tenon Jig
Item Super FMT / Super FMT-M



Leigh FMT Pro
Mortise & Tenon Jig
Item FMT Pro /
FMT Pro-M

Rout mortises and tenons in 60 seconds!

Leigh Jigs make it easy: One guide, one bit, one setup for perfect joints every time. Make tables, chairs, beds, chests, cabinets and so much more!



JIG FEATURES

- 68 joint sizes from 1/16" x 1/8" up to 1/2" x 5" [79 metric joint sizes from 2x4mm up to 12x130mm] using 21 standard guides (24 metric)
- Custom joint sizes up to 1/2" x 5" [12x130mm] can also be achieved
- 6 optional specialty guides make square tenons, louver doors, Y-axis 90° mortise
- Single, double (in line and side-by-side), triple, quadruple joints
- Recordable, repeatable fit adjustment
- Angled and compound angled joints
- Works with virtually any plunge router
- Heavy gauge steel frame (Super FMT)
- CNC machined alumin. frame (FMT Pro)
- Multi-position clamping
- Clamp boards up to 3" x 5-1/2" [76 x 140mm]
- Easy and precise joint sighting

STANDARD EQUIPMENT

- Universal sub-base that attaches to virtually any plunge router
- Two F-Clamps (Super FMT); Cam-action speed clamps (FMT Pro)
- Joint guide stand
- 5/16" HSS spiral upcut bit, 1/2" shank
- Two outrigger bars (FMT Pro only)
- Adjustable side stop fence for tenoning
- Screwdrivers and mounting hardware
- Illustrated user guide

Visit www.leighjigs.com for more details

Jig Assembly, Mounting, and Using the Clamps

Make Sure You Have All the Parts.

Before you start to assemble your Leigh D4R Pro, check to make sure you have received all the required parts.

The small carton you removed from the end of the main carton contains:

1. 1 Leigh e7 eBush (elliptical guide bushing) and pin wrench, 2 spacers
2. 2 dovetail bits, 1 straight bit, 1 collet reducer
3. 2 scale assemblies
4. 2 support brackets
5. 2 support bracket knobs
6. Square-head guide finger screwdriver
7. 4 clamp springs
4 clamp T-bolts
4 flat washers
4 T-bolt nuts
2 square nuts
1 5/64" hex key
1 flat head machine screw
1 Leigh wrench/gauge
8. 4 cam-action speed clamps
4 cam clamp step washers

...and any other small optional items you may have ordered with your new jig. Check the packing slip for this information.

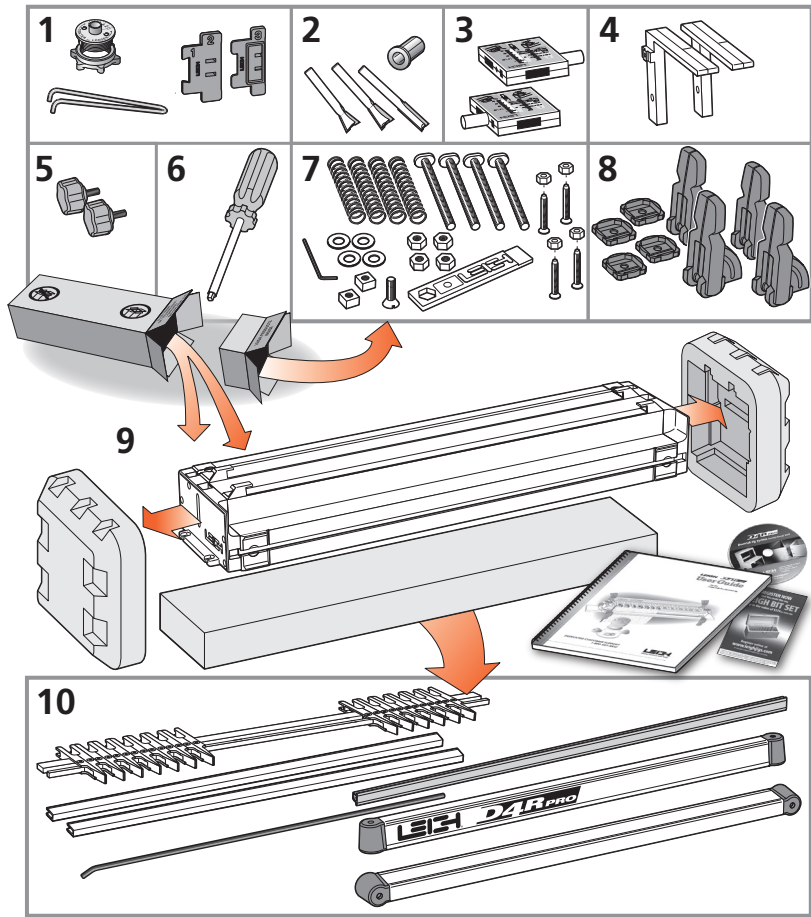
The main carton contains:

9. 1 main jig body
1 Leigh jig user guide
1 warranty/registration card
1 DVD instructional video (English only)

The large inner box contains:

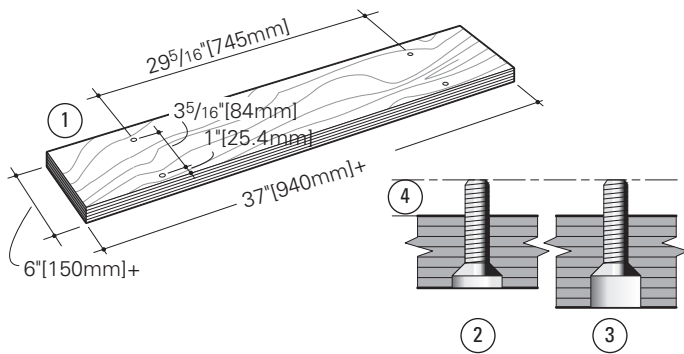
10. 1 finger assembly on 2 bars
D4R Pro has 26 guide fingers (13 pairs)
2 lengths bridge extrusion
1 sliding dovetail fence (cross cut fence)
1 nylon stop rod
2 clamp bars

If any items are missing from your jig, contact your supplier or Leigh Industries immediately. See Appendix IV, Customer Support.

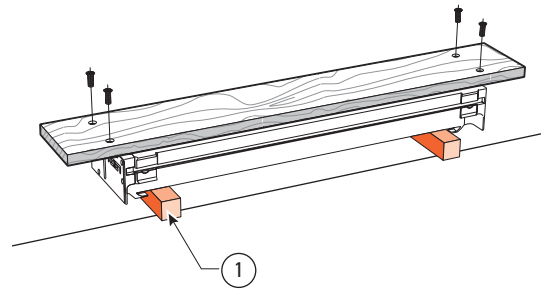


Important Note

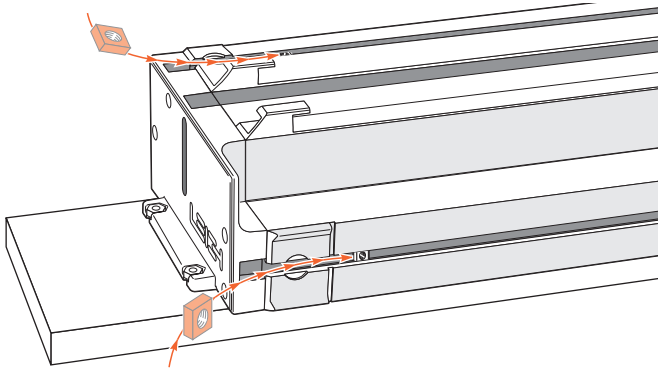
Mount your jig securely and assemble it completely before you try to use it.
Make sure you have read and understood all the material in the Safety section of this user guide before using the jig.



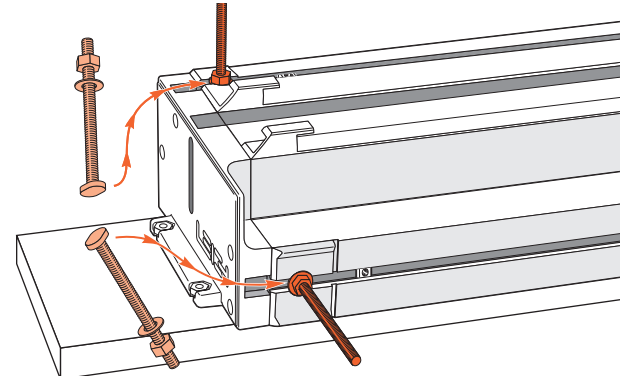
1-1 Prepare a flat board at least $\frac{3}{4}$ " [20mm] thick, and a minimum of 37" x 6" [940x150mm]. Drill four $\frac{9}{32}$ " [7mm] holes on 29 $\frac{5}{16}$ " x 3 $\frac{5}{16}$ " [745x84,2mm] centers, 1" [25.4mm] in from the front edge of the board ①. Countersink ② or counterbore the underside ③ if the board is thicker, so that the four $\frac{1}{4}$ -20x1" long machine screws will project above the top surface by $\frac{3}{8}$ " [9,5mm] ④.



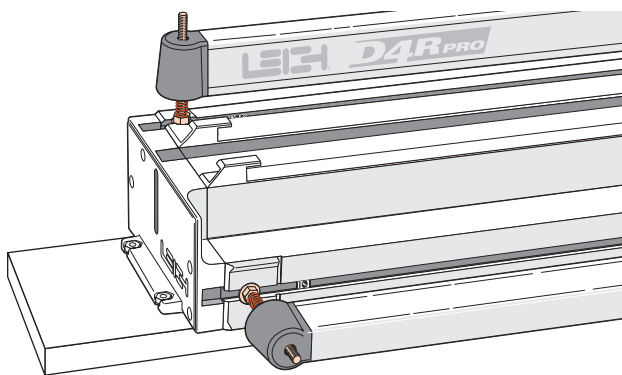
1-2 Turn the jig body upside-down on two blocks ① (to protect the side stops). Using the four nuts and four countersunk machine screws, bolt the base board to the jig using the two nut recesses in each end housing. Holes drilled 1" [24mm] from the front edge of the board go to the front of the jig. Now you can clamp your D4R to any bench.



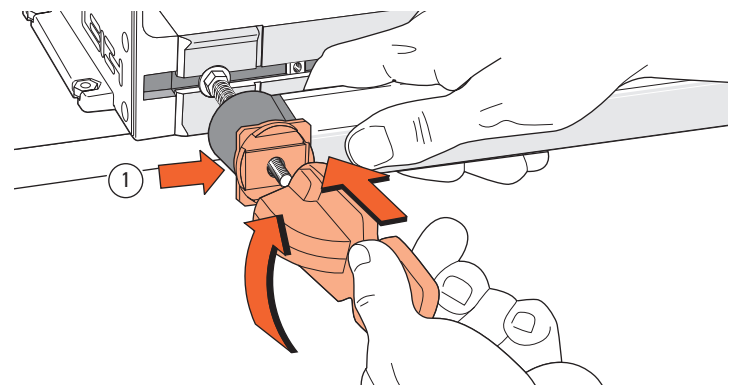
1-3 With the jig right side up, insert one square nut (part #284) into each of the channels in the main extrusion. These nuts are for possible future attachment of accessories. See Chapter 9.



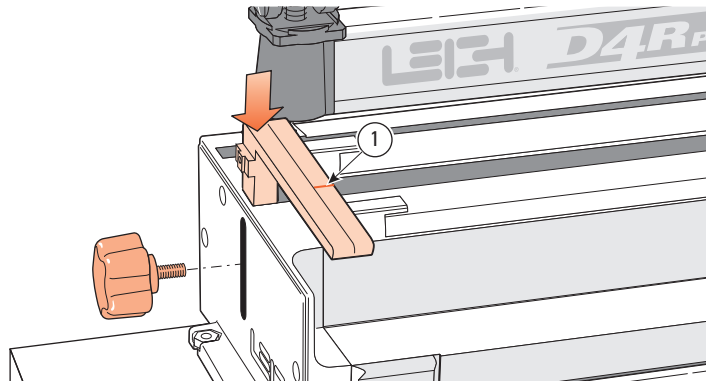
1-4 Insert the four clamp T-bolts into the T-slots (two at each end of the jig). Position so that the washers seat into the round milled recesses. Tighten the four clamp bolt nuts with the Leigh wrench.



1-5 Place four springs and two clamp bars on the T-bolts. Make sure the clamp bars move freely on the T-bolts.

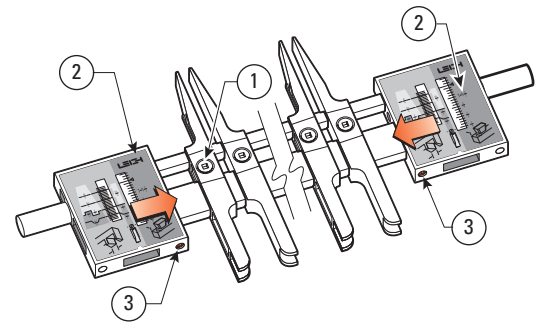


1-6 Place one black step washer ① on each T-bolt with the flat side against the clamp bar. Screw a clamp lever assembly onto each T-bolt, making sure the cam lobes are between the step washer sidewalls.

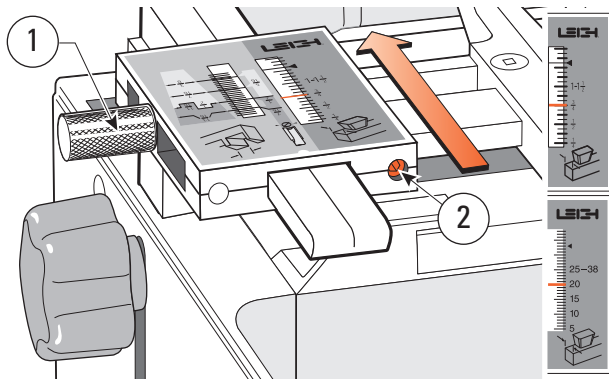


1-7 Insert the right and left support brackets. Attach the knobs, raise to full height and tighten. **Note:** For clarity, the set line ① is drawn in red. The actual lines are black.

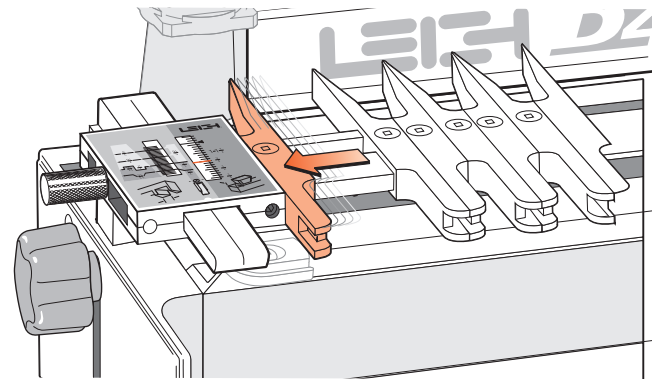
IMPORTANT



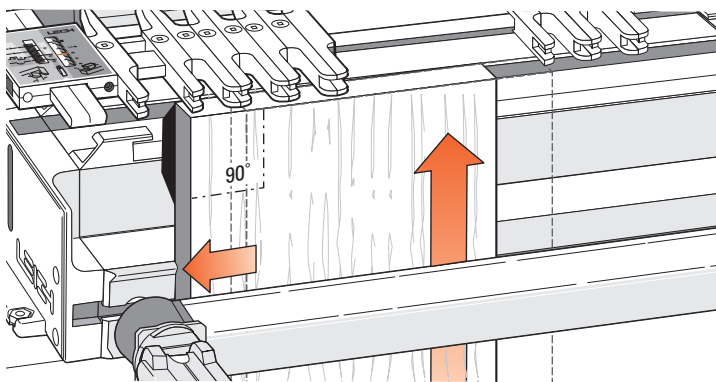
1-8 Place the finger assembly on your bench with the guidefinger screws ① on top and the pointed ends of the guidefingers away from you. Fit the scales onto the finger assembly, placing the HB TAILS scale ② to the right at both ends. **Do not tighten the scale set screws ③ yet.** **Note:** The ¼" square half-blind pin bar is supposed to be shorter than the finger bar. It is not intended to fit in the scales at both ends.



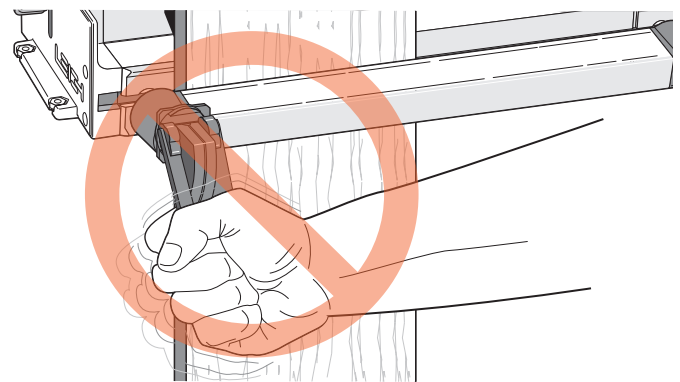
1-9 Slide the complete finger assembly with loose scales onto the support brackets. Set the bracket index line at ¾" [20mm] on the HB TAILS scale and tighten the thumbscrews ①. Tighten the scale screws ② firmly with the hex key provided. **If the scales are removed from the finger bar for any reason, follow this procedure to re-attach them.**



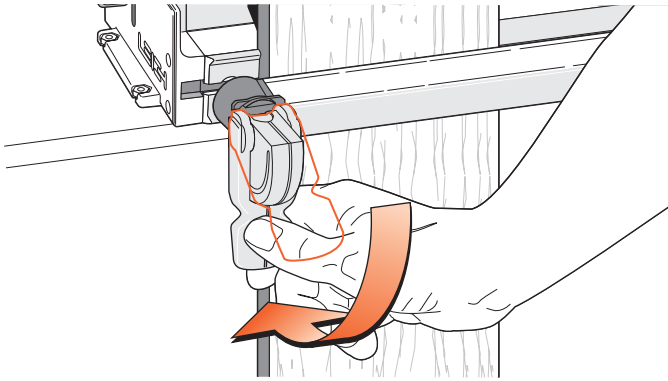
1-10 Loosen the thumbscrews and make sure the finger assembly slides on and off the support brackets smoothly, in both the tail and pin modes. Move the outermost guidefinger at each end of the finger assembly outward to touch the scales, and tighten. **If fingers do not slide easily, see note on page 7.** This finger acts as an end support for the router and is not generally used as a guide.



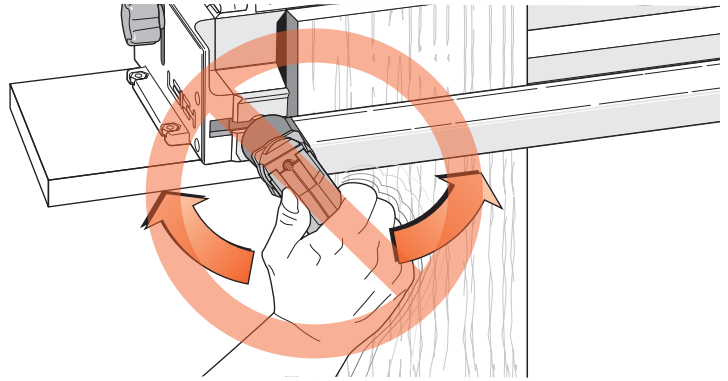
1-11 You will operate the cam-action speed-clamps every time you use the jig, so get used to the feel of the clamps first. Use some square ended boards for practice. Make sure the end of the board is touching the underside of the guidefingers. Then slide the board over against the side stop.



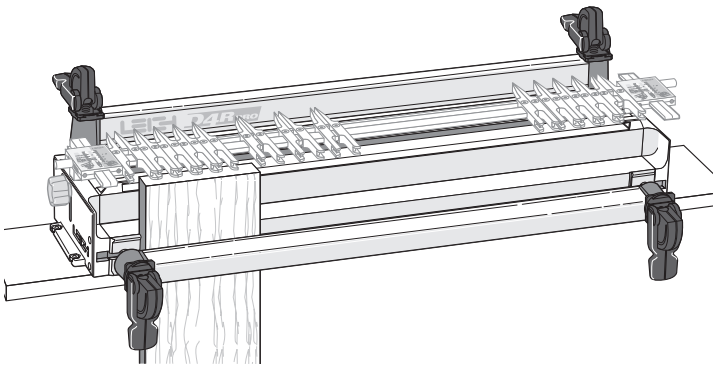
1-12 **Do Not force the cam-action speed-clamp.** It has great leverage, and excessive force may damage the workpiece or the jig.



1-13 A smooth, firm action is enough to engage the clamp.
Rule of thumb: If you can't throw the lever comfortably by pressing the end of it with your thumb, reduce the tension. A few minutes of trial and error will help you feel the right clamp tension. **Firm thumb pressure is about right.**



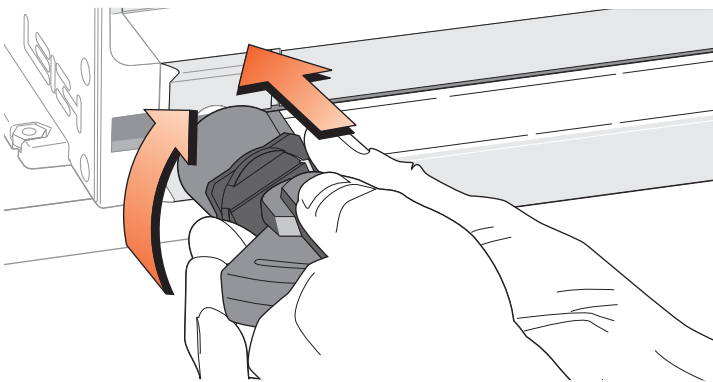
1-14 Do Not use the lever as a torque arm. Adjust the clamp tension only with the clamp disengaged.



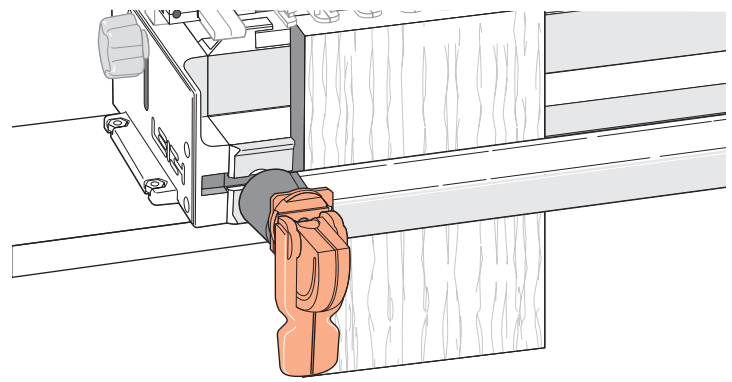
1-15 When engaged, the front clamp levers should point down and the rear clamp levers should point away from the operator.



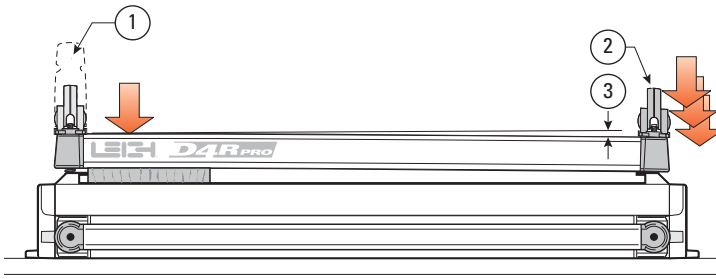
1-16 If the lever is badly positioned at the correct clamping pressure...



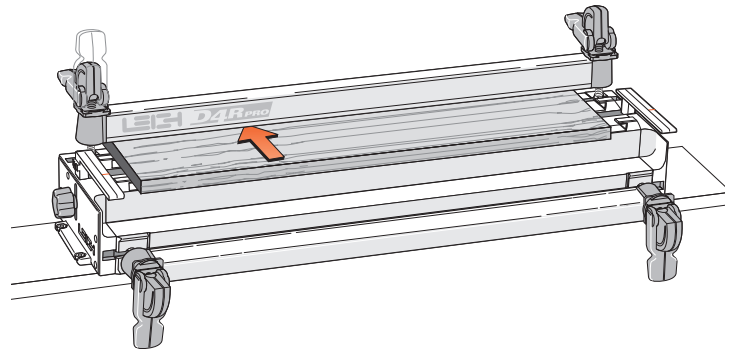
1-17 Release the clamp, remove the board and turn the step washer a quarter turn (the step height inside the step washer is one quarter of the thread pitch).



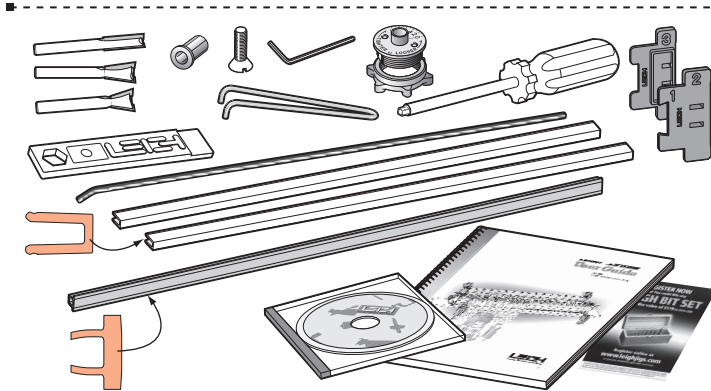
1-18 Then adjust the clamp until the clamp lever is in the right position at the right pressure.



1-19 For all but the wider workpieces, you need only operate the clamp on the workpiece end ① of the jig to release the board. For narrower boards, the clamp at the free end ② should be just tight enough to bow the clamp bar about $\frac{1}{8}$ " [3mm] ③ *greatly exaggerated in this view.*



1-20 Make up a spacer board. This board will be used to support the finger assembly in **all front-clamping vertical board modes**. The spacer board should be flat, straight and of even thickness. We suggest $\frac{3}{4}$ " x 6" [20x150mm] by approximately 23" [580mm] long. **Note:** the thickness of the spacer board has no relationship to the thickness of the vertical board being routed.

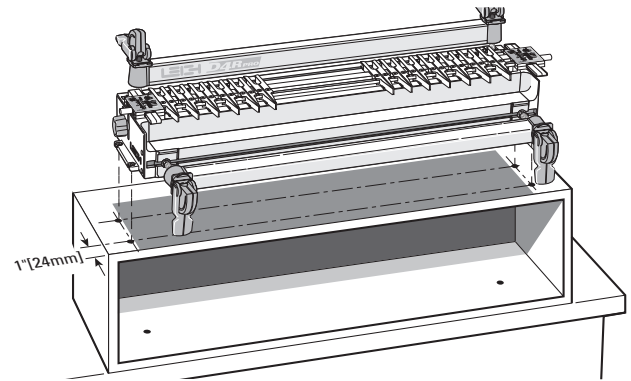


1-21 After you have assembled and mounted the jig, you will have some items left over:

- 1 straight router bit Leigh No.140-8
- 1 dovetail router bit Leigh No.80-8
- 1 dovetail router bit Leigh No.120-8
- 1 collet reducer
- 1 Leigh wrench/gauge (*gauge: Ch.9*)
- 1 accessory attachment screw (*Ch.9*)
- 1 hex key, allen wrench
- 1 Leigh e7 eBush (elliptical guide bushing)
- 1 pin wrench (eBush adjustment wrench)
- 1 Leigh guide finger adjustment screwdriver
- 2 spacers, one for single pass half-blind dovetails (*Ch.11*), and one for box joints (*Ch.15*)
- 2 lengths of bridge piece extrusion (*Ch.10*)
- 1 sliding dovetail fence (cross cut fence) (*Ch.16*)
- 1 nylon stop rod (*Ch.11*)
- 1 instructional DVD, and this user guide.

Please keep all these items ready for use.

1 warranty card. **Please register your warranty.** You will automatically be entered in Leigh's Warranty Registration Contest.



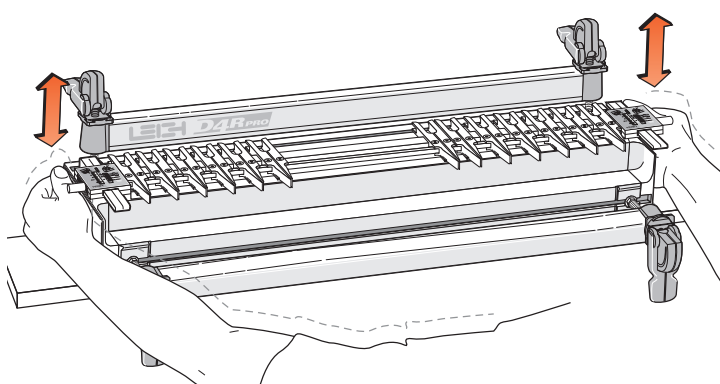
1-22 To gain height for a more comfortable working position or for routing longer boards, mount the jig to a box that can be bolted securely to a bench. *See also fig. 17-15.* ■

Adjusting the Finger Assembly

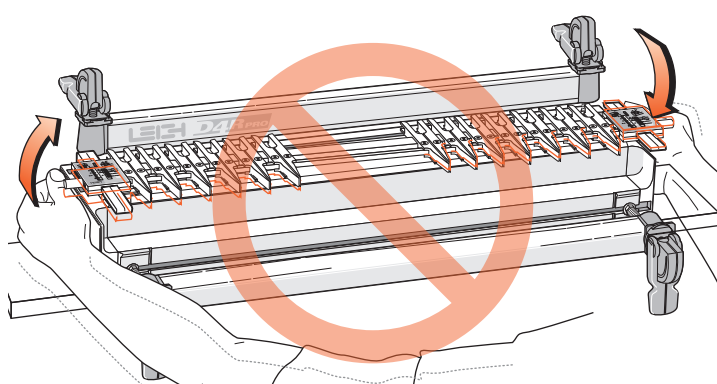
THE FINGER ASSEMBLY IS THE HEART OF THE LEIGH JIG.

Spend a few minutes now to familiarize yourself with these simple adjustments.

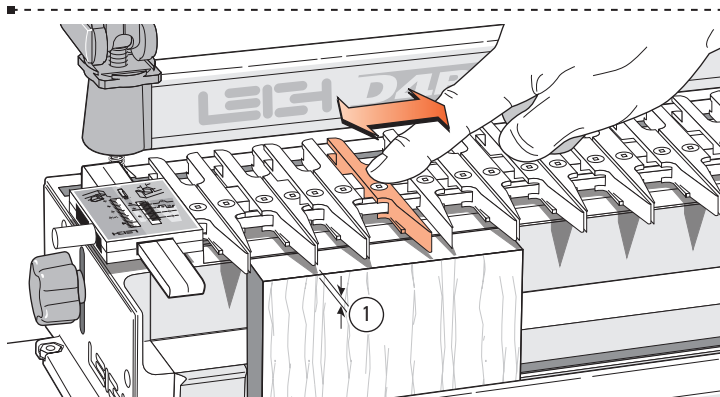
NOTE: The first few times you use your jig, some fingers may "stick". This is normal. To "unstick", loosen the finger screw approximately 3/4 of a turn, and with the screwdriver still in the screw, press down firmly (on the screwdriver). This will loosen the finger locking wedge (you may feel a click). The finger will now move freely.



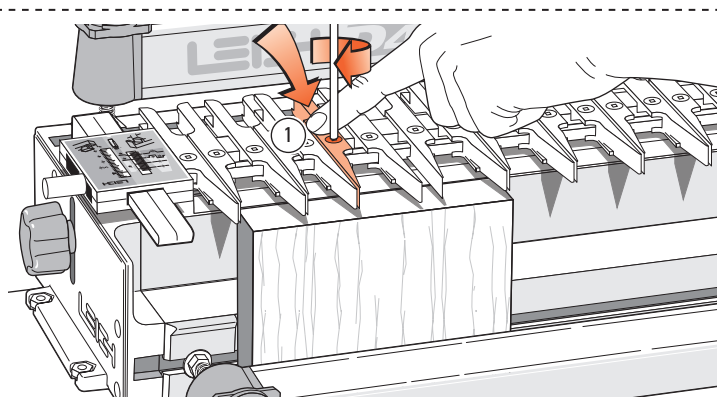
2-1 Practice adjusting the finger assembly height. Loosen the support bracket knobs and hold them firmly. Raise and lower the assembly evenly, keeping it level, and tighten the knobs to lock it at various heights.



2-2 Do Not raise or lower one end of the finger assembly at a time.

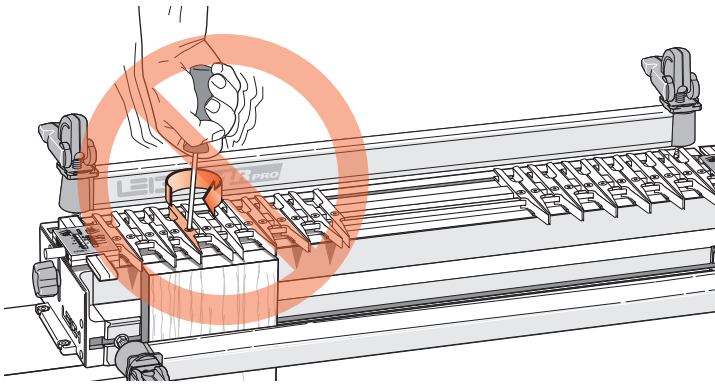


2-3 To practice adjusting the guide fingers, put a board in the front clamp. Always raise the finger assembly slightly, approximately 1/8" [2mm] above the spacer board and/or workpiece ①. This is essential to allow the guide fingers to move freely on the guide finger bar and ensures that the fingers will be level and flush when locked up. Move the guide fingers by pushing on the middle to slide them along the guide finger bar.

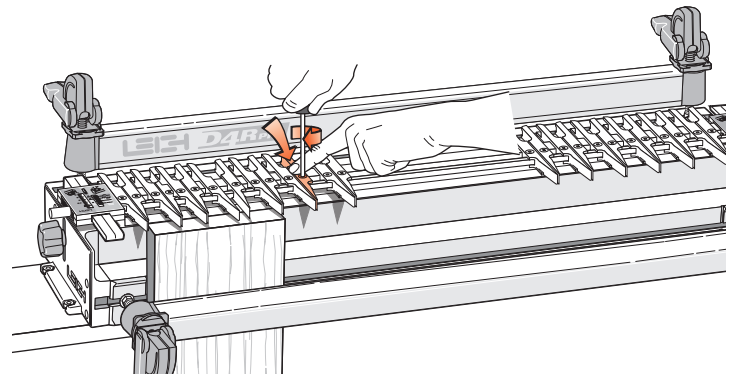


2-4 Loosen about half the guide fingers and practice unlocking, moving, positioning and re-locking them. Always press down lightly on the center of each guide finger ① when tightening the screws.

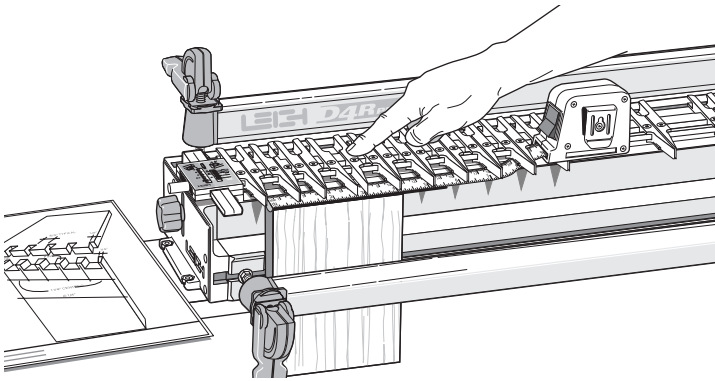
If after loosening a finger it "sticks" and doesn't slide, see header note above.



2-5 Do not over-tighten the guide finger locking screws. The Leigh screwdriver provided will give ample torque for easy lock-up without strain.



2-6 Always tighten unused guide fingers before routing, as router vibration will cause loose screws and wedge nuts to fall out and be lost.



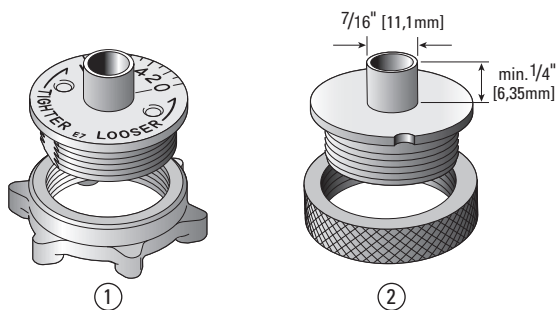
2-7 You can adjust the guide fingers by eye, or by measurement to suit a set of plans.

Note: Always lower the finger assembly down onto the workpiece before routing. ■

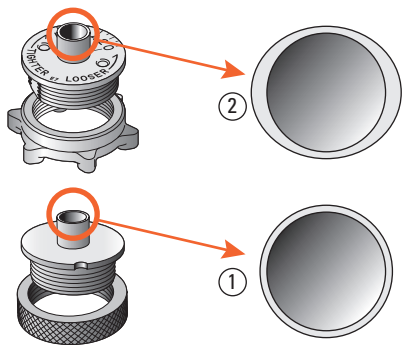
The Leigh eBush and Optional Guidebushes

The guidebush is the vital link between router and jig. All joints created on the D4R Pro are routed with the unique e7* elliptical guidebush, a Leigh innovation that provides precise joint fit adjustment for box joints and sliding dovetails. If your router doesn't accept the e7-Bush, you can use an alternative guidebush with some limitations.

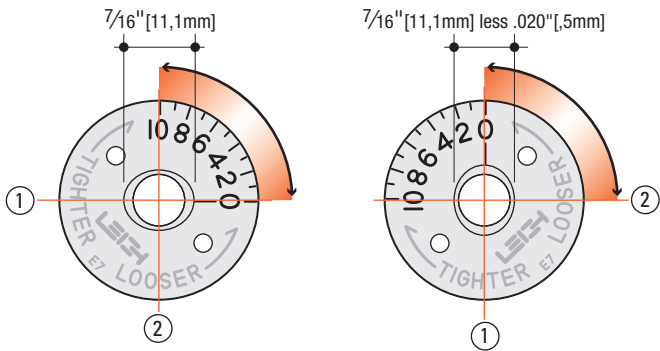
*Supplied with the D4R Pro. U.S. Patent No. 8,256,475. UK Patent No. GB2443974. Patent Pending in Canada.



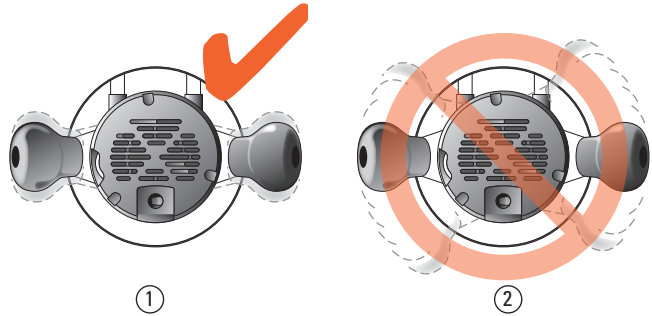
3-1 The Leigh e7-Bush ① is used to rout through, half-blind, single pass half-blind and sliding dovetails, and also box joints on the D4R Pro. The elliptical design provides precise joint fit adjustment for box joints and sliding dovetails. A round 7/16" [11,1mm] guidebush (min. barrel length 1/4" [6,35mm]) ② can be used to rout through, half-blind, and sliding dovetails on the D4R Pro.



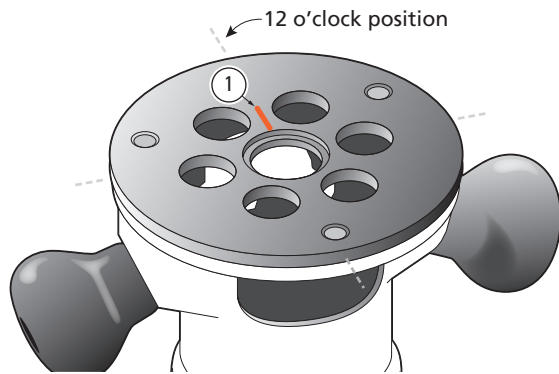
3-2 The Leigh e7-Bush that comes with your D4R Pro is a unique template guidebush that is adjustable in size. Unlike regular circular template guidebushes ①, the e7-Bush is slightly elliptical in cross section ②. This simple innovation effectively changes the guidebush "active diameter size" when it's rotated, and provides benefits not possible with a standard round guidebush.



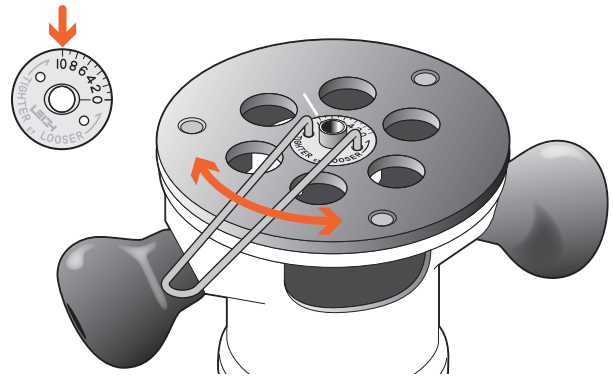
3-3 The e7-Bush (7/16") fits the router base or a guide bush adaptor in the base (see Appendix I). The ellipse/oval shape has a major axis ① 7/16" [11,1mm], and minor axis ② 7/16" [11,1mm] less .020" [5mm]. Turning the eBush 90° in the router base changes the active diameter by .020" [5mm] providing minute adjustment and recordable settings for perfectly fitting box joints.



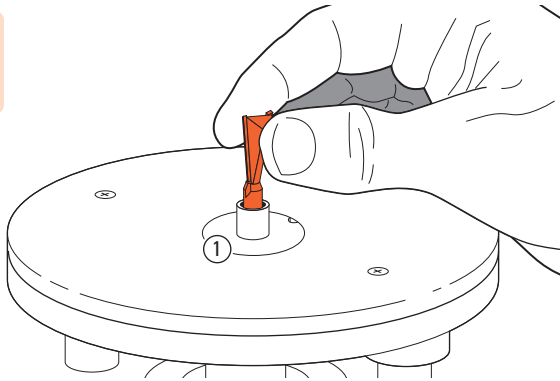
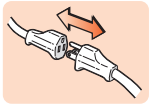
3-4 Here's how it works. In normal use on a dovetail jig, the operator does not rotate the router more than a few degrees either way ①. In fact, because of potential bit-to-bush eccentricity problems it is advisable to minimize router rotation on jigs ②.



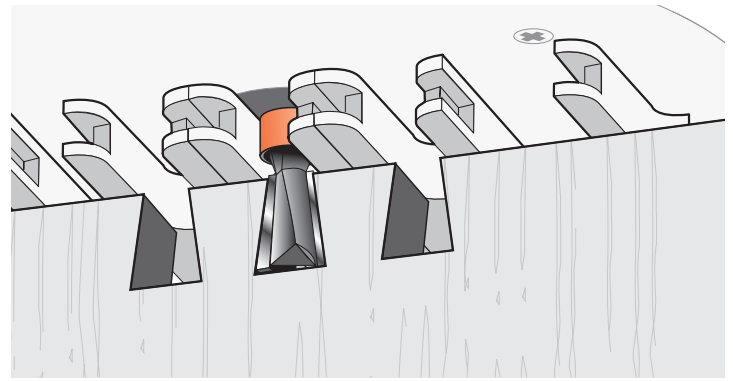
3-5 Establish the orientation in which you normally hold and operate the router on the jig. Now, up-end the router in the same orientation. Make a small scratch line or permanent ink mark ① on the router base or eBush adaptor at the 12 o'clock position. Learn about eBush adaptors on page 69.



3-6 Fit the e7-Bush to the router and align No.10 to the scratch mark. This setting is used for all through and variably spaced half-blind dovetails on the D4R Pro. Settings for single pass half-blinds, box joints and sliding dovetails are described in applicable chapters. Be sure to retighten the eBush nut after each adjustment is made with the included pin wrench.



3-7 The bit goes through the e7-Bush ① and fits in the router collet or chuck.



3-8 The projecting part of the guidebush runs along the side edge of the guide finger. The rotating bit cuts the wood only, and touches neither the guidebush nor the guide surface. ■

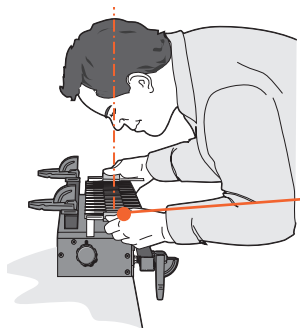
Basic Jig Functions and Scale Modes

Here are the very basics for understanding the different D4R Pro dovetail modes and settings.

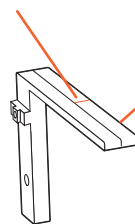
THE FOUR SCALE MODES

The Finger Assembly attaches to the support brackets in four different modes to match the type of joint you are cutting.

This index line is used when setting the finger assembly scales. The line is illustrated in red for clarity, but is black on the jig.



Always read scales from directly overhead to avoid parallax problems.



All D4R Pro jigs are shipped with "short" support brackets.

Note: Inch scales are shown here. Millimeter scales have identical layout.

The active scale is always on the right of each scale assembly.

The inactive scale is always on the left of each scale assembly and is upside down.

Each scale has its own mode icon (a drawing of the joint part made in that mode).

Scales are color coded. Silver background for Through Dovetails. Green background for Half-Blind Dovetails.

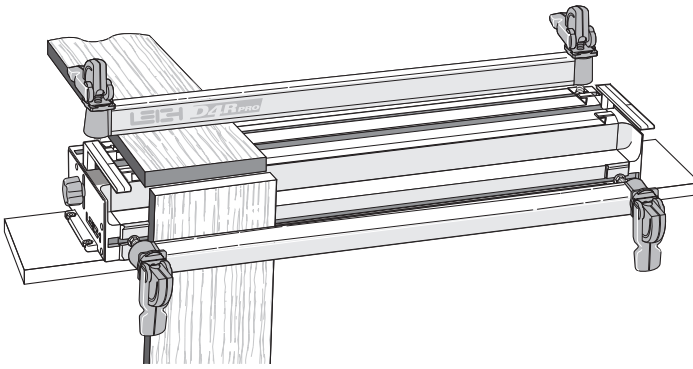
The specific settings for each scale are fully described in the appropriate chapters.

1. TD TAILS

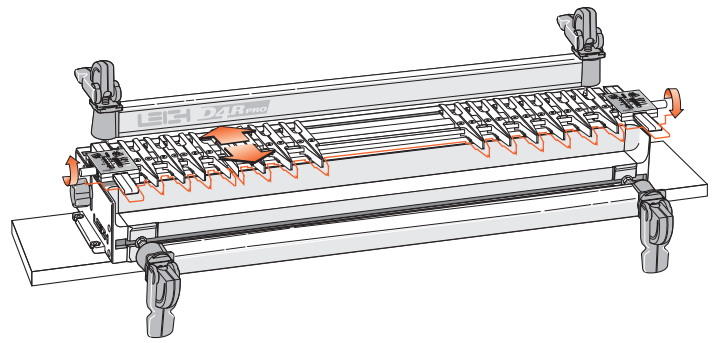
3. HB TAILS

2. TD PINS

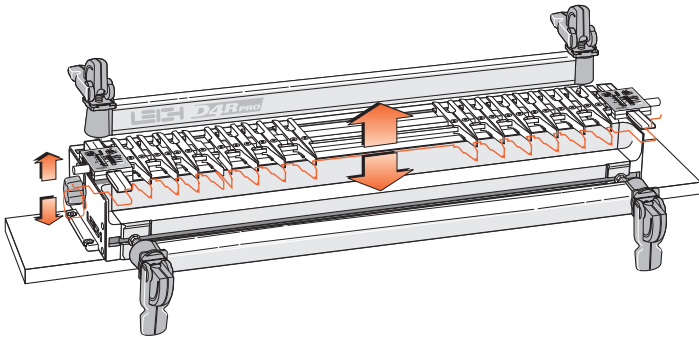
4. HB PINS



4-1 The two clamp bars hold workpieces horizontally or vertically. The side stops align the boards in the correct position each time.



4-2 The guidefinger assembly slides on to the support brackets above the workpiece. The finger assembly is adjusted in or out using calibrated scales on each end to suit different thicknesses of vertical boards.



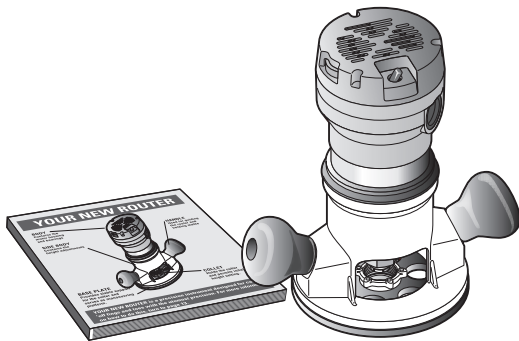
4-3 The finger assembly is raised or lowered using the support brackets to suit different thicknesses of horizontal boards. ■

D4R Pro - CHAPTER 5

Using Your Jig Safely

Safety is not optional.

Read and follow the recommendations in this chapter.




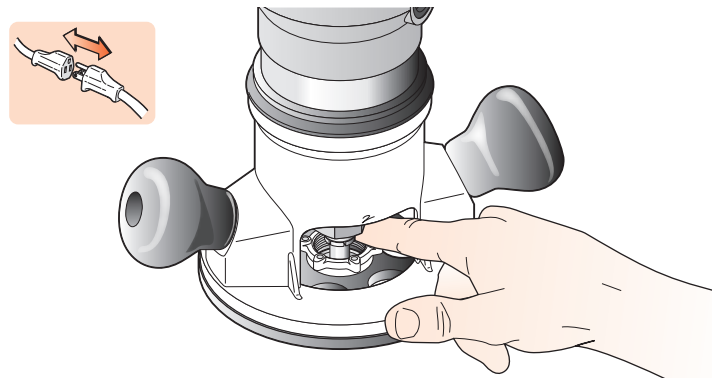
5-1 Read the owner's manual that came with your router. It is essential to understand the router manufacturer's instructions completely. Always operate variable speed routers at the fastest possible speed.



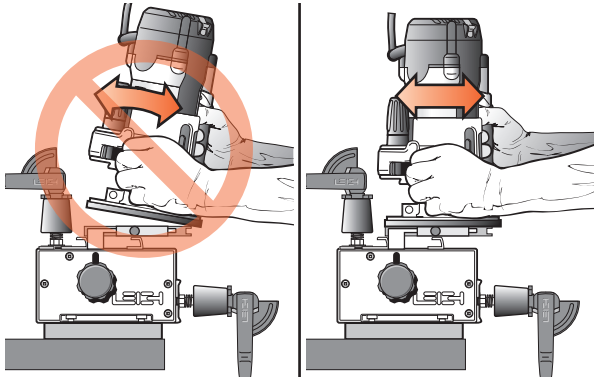
5-2 Always wear approved safety glasses. Always wear hearing protection. Protect yourself from harmful dust with a face mask. For complete dust and waste collection, add a Leigh VRS (Vacuum & Router Support) to your jig. See page vi.



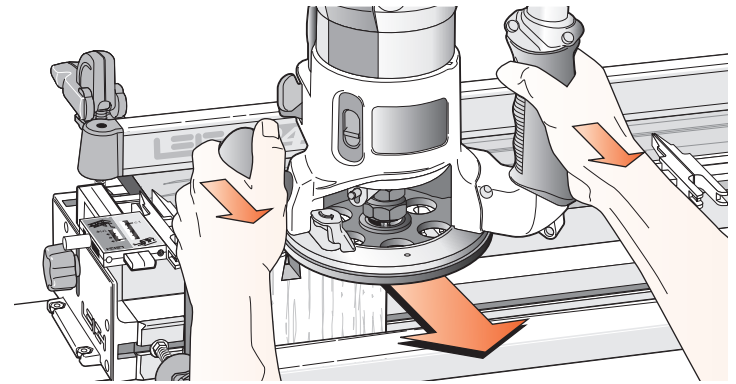
5-3  Never drink alcohol or take medications that may cause drowsiness when you will be operating a router.



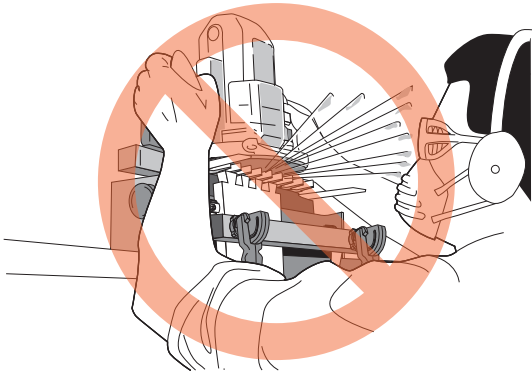
5-4 Always disconnect the power source from the router when fitting bits or guidebushes, or making adjustments. Before connecting the router to the power source, make sure the bit and collet revolve freely in all the areas you plan to rout, and the bit does not touch the guidebush or jig.



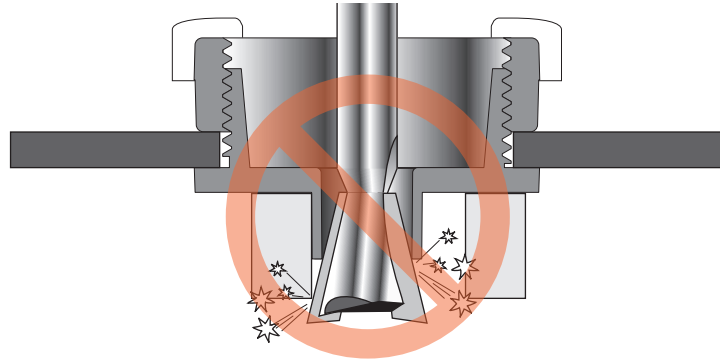
5-5 Do not tilt the router on the jig. Keep the router flat on the jig assembly.
Note: The optional Leigh VRS attachment prevents router tilting. See page vi.



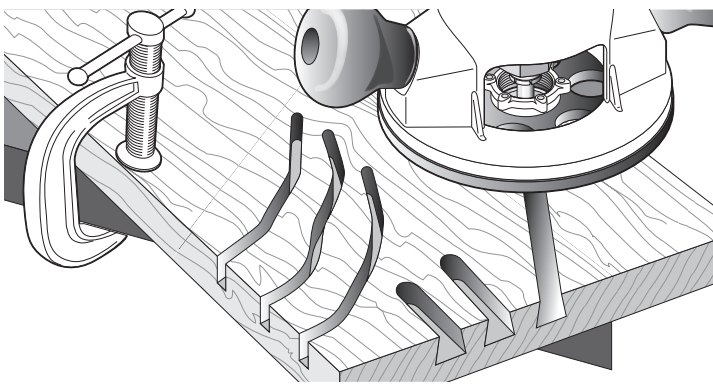
5-6 If you insist on removing the router from the jig while it is still revolving, always pull it straight off the jig horizontally, and do not raise or lower the router until it is completely clear of the jig. With the Leigh VRS fitted to your jig you can simply park your router to one side.



5-7 Do not rout at face level.



5-8 Never release the router plunge mechanism when using dovetail bits. Check if your plunge router has a stop nut to prevent this from happening accidentally.



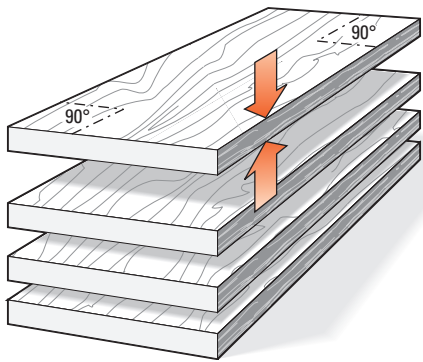
5-9 If you have never used your router before, be sure to follow the router manufacturer's instructions for its use. Make plenty of simple open-face practice cuts *without a guidebush* before you try to use the router on the Leigh jig. You must, of course, always use a guidebush when routing on the Leigh Jig. ■

D4R Pro - CHAPTER 6

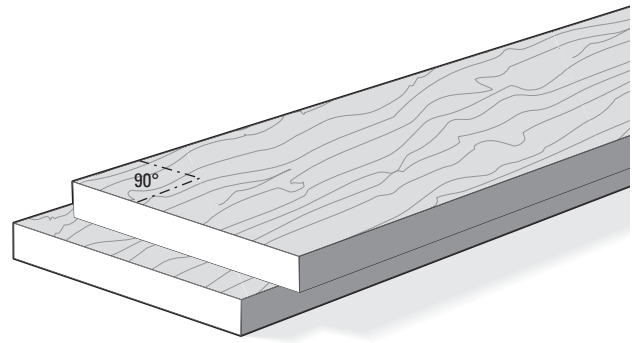
Wood Preparation

"Garbage In - Garbage Out"...

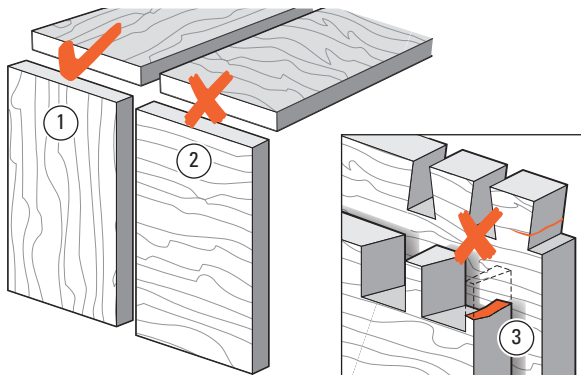
This adage of the computer age stands equally true for dovetail jigs.




6-1 It is vital for accurately aligned joints that stock used on the Leigh jig must be prepared straight, flat, of even thickness and equal widths, with square ends and edges. *Note that plywood is generally unsuitable for routing because of tearout problems.*



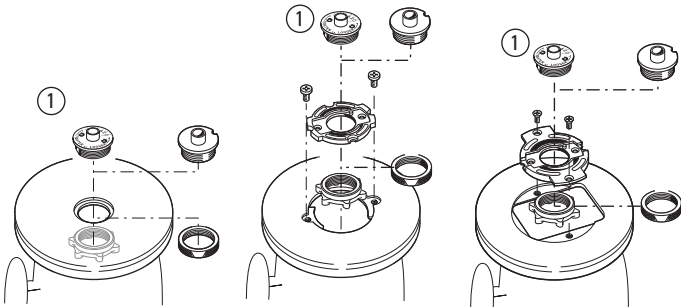
6-2 You will want to test the jig, so prepare some $\frac{3}{4}$ " x $5\frac{1}{2}$ " [20x140mm] boards. Cut them to length as you need them for the jig tests you want to perform. Use them for practice with the jig's various joint modes so you can see how the different modes work. Remember, though, that two boards of different thicknesses can be joined just as easily.



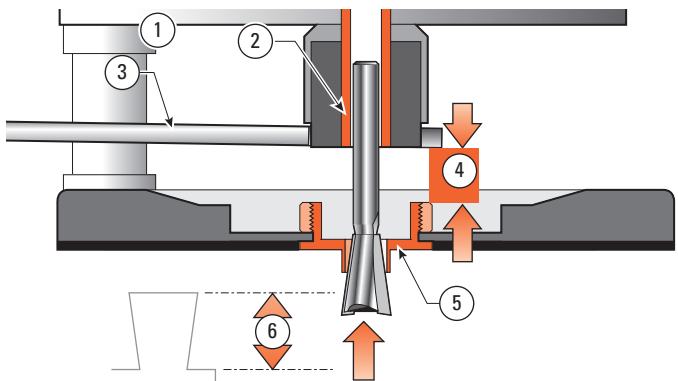
6-3  Dovetail joints are intended for joining end-grain to end-grain ①. Attempting to cut dovetails in side-grain ② does not work because:

- A. The wood will tear out badly when routing.
- B. Even if you could rout them, the pins and tails would easily break off across the short grain ③, either during or soon after the assembly when the boards start expanding or contracting at different rates. ■

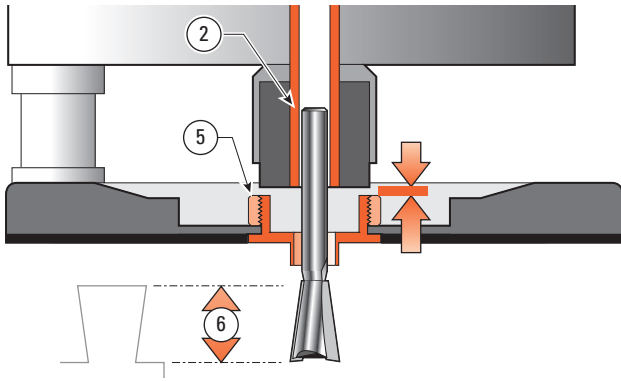
Router Preparation



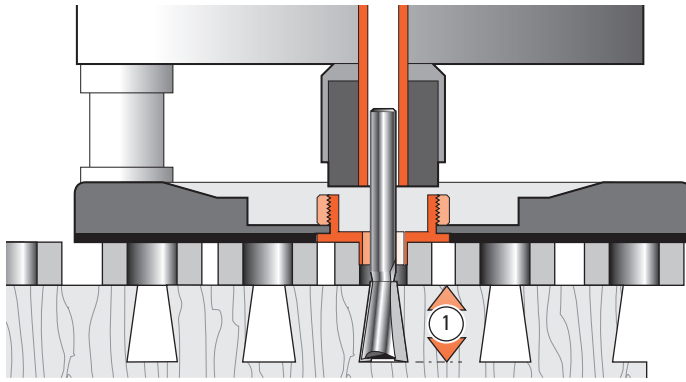
7-1 Fit the e7-Bush ①. One is included with your D4R Pro. If the eBush is incompatible with your router, any 7/16" [11,1mm] guidebush (min. barrel length 1/4", see page 70) will work for all but box joints on the D4R Pro.



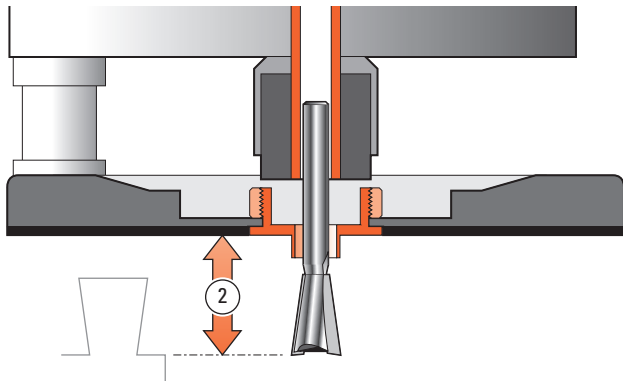
7-2 When fitting a bit to the router ①, fit the shank as far into the collet ② as possible. Always rout with the collet as close to the guidebush as possible. Usually you can't securely grip the collet nut with a wrench ③ if the collet is at its optimum low position. Fit the bit so that the remaining travel ④ between collet and guidebush ⑤ will let the bit reach the required depth of cut ⑥.



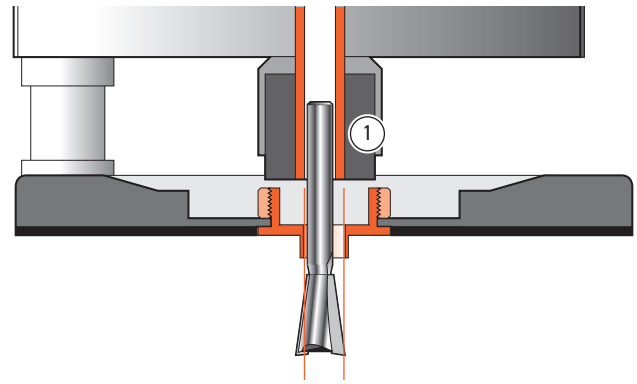
7-3 Tighten the collet ② securely and lower the collet to adjust the depth of cut ⑥, but make sure the collet does not contact the guidebush ⑤. Some smaller collets can go down into the inside of the guide bush. Take advantage of this.



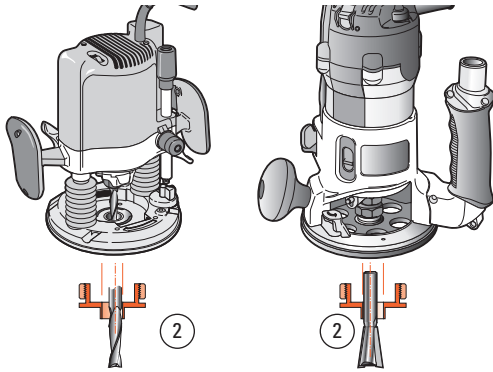
7-4 Depth of Cut: The depth of cut always refers to the actual depth of the cut into the wood beneath the guidefingers ①.



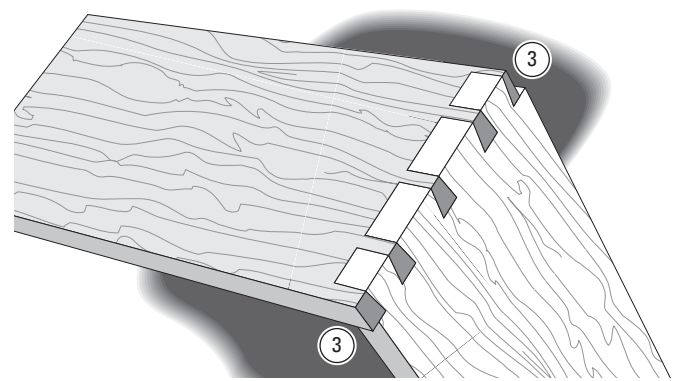
7-5 Depth of cut is **not** the distance the bit projects from the router base. This is **bit projection** ②. This guide generally refers to depth of cut. Bit projection ② is always .450" [11,5mm] more than depth of cut.



7-6 Ideally, the router collet (and bit) should be concentric (centered) to the guidebush as in figure 7-5. Regrettably, this is often not the case; the bit can be off center (eccentric to) the guidebush ①. The illustration shows the problem highly exaggerated. The good news: bit to bush alignment doesn't affect joint fit or flushness; both are "adjusted out" in normal jig setup.

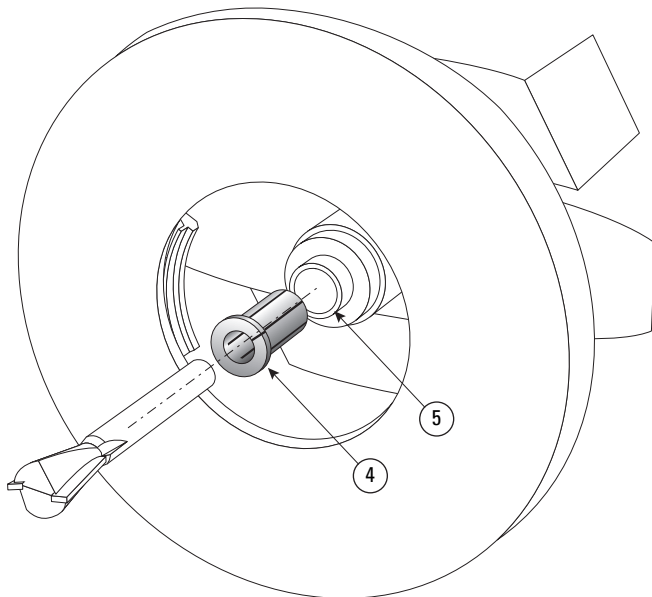


7-7 Concentricity problems can only arise if two routers are used for through dovetails, (one for pins; one for tails). Routers with different bit to guidebush offsets ② (misalignment shown highly exaggerated)...



7-8 ...will cause pin to tailboard ③ misalignment (again, shown highly exaggerated).

Fortunately, some newer routers have sub-bases that can adjust for concentricity. If you don't have this type, it might pay to stick to a single router for through dovetails.



7-9 Shank Selection/Collet Reducer

All Leigh Dovetail jigs are shipped with superior strength 8mm shank dovetail bits and a 1/2" to 8mm collet reducer. The reducer ④ simply slides into the 1/2" collet of your router ⑤ (do not remove the collet nut) and the 8mm shank bit is inserted into the collet reducer. The collet is tightened as normal. The collet reducer is not required with 1/2" [12,7mm] shank bits. ■