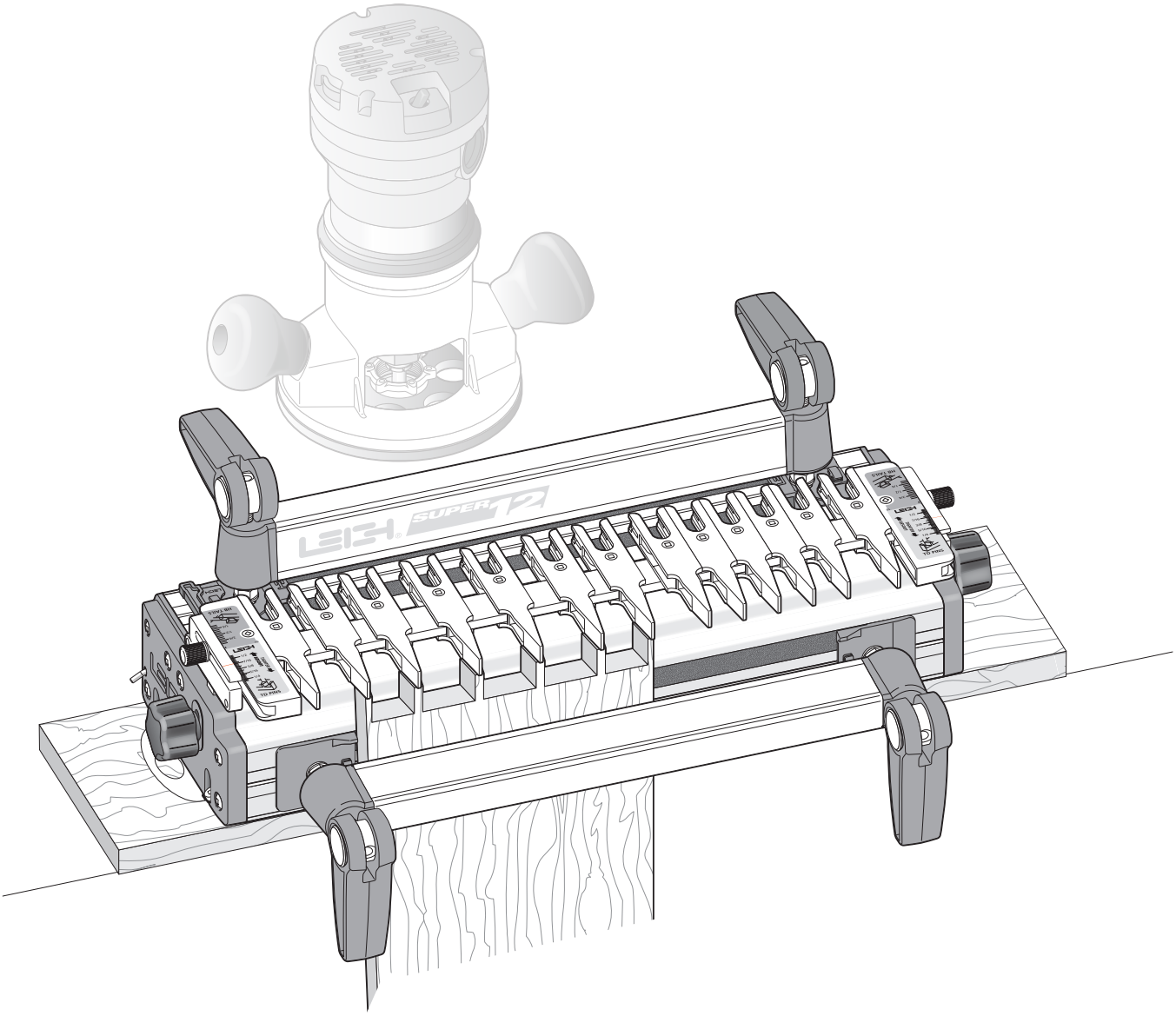
LEIGH SUPERJIG
User Guide

For Leigh Super12, Super18 and Super24 Dovetail Jigs



Dedicated Customer Support
1-800-663-8932

Joining Tradition with Today

Your New Leigh Dovetail Jig

Congratulations! You now own a most useful and versatile dovetailing tool. The Leigh Superjig Dovetail Jig will help you cut an infinite variety of joints, and all of its major functions are described in detail in this user guide, plus there's a slide-out Quick Reference Guide underneath the jig. A very helpful DVD is also included, but the user guide is essential reading.

We recommend that you first assemble and mount the jig, carefully following the instructions in the first section of the user 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, cut a few practice joints in scrap boards before you use the jig to rout a precious hardwood work piece!
If you have questions not answered in this user guide, please call the Leigh customer support line: **1-800-663-8932**
or email Leigh: **help@leighjigs.com**.

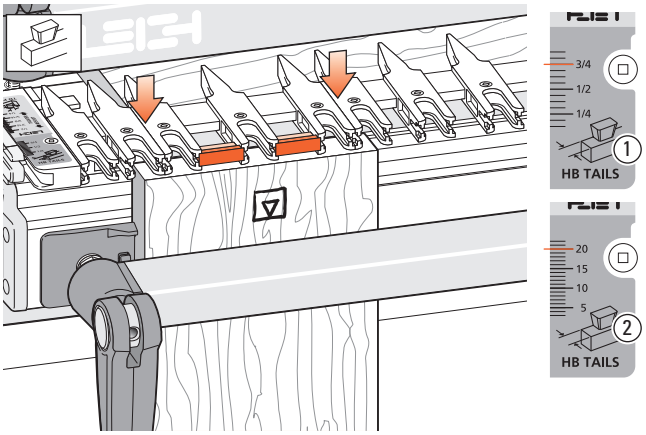
But remember: "If at first you don't succeed, read the instructions!"

*See Appendix IV – Customer Support

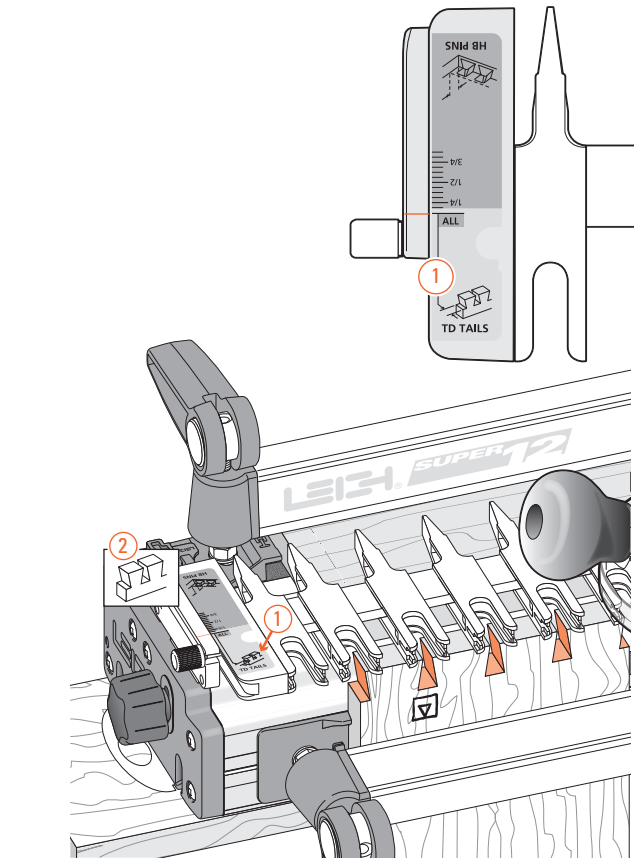
Important! Inches and Millimeters

The Superjig can be ordered in inch or metric versions. They're identical except for the calibration scales. This Leigh English-language user guide show measurements in both inches and millimeters, with "inches" first, followed by "millimeters" in square brackets.
Example: ¾"x 5½"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.



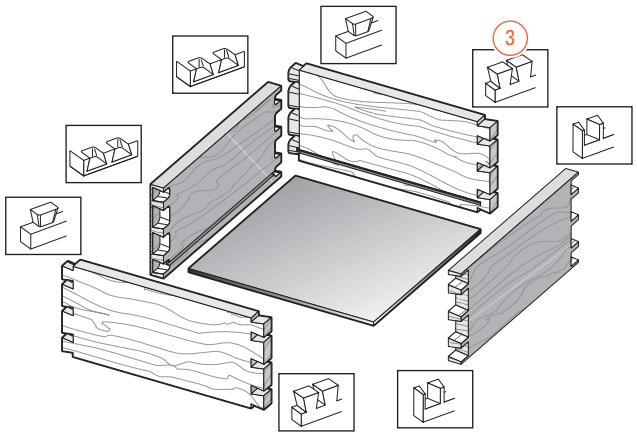
Where finger assembly scales overlay an illustration, the "inches" scale ① will be at the top, the "millimeters" scale ② will be at the bottom. Only the front "active" half of the scales are illustrated. For clarity, setting positions are indicated with a red line in the user guide only. **On the jig,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



Glossary of Symbols

To help you understand the instructions and illustrations in this user guide, 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 throughout the 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 it's own mode icon ①, identifying that joint part. 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)

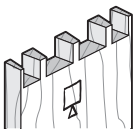
TD Pins
(pins for through dovetail joints)

HB Tails
(tails for half-blind dovetail joints)

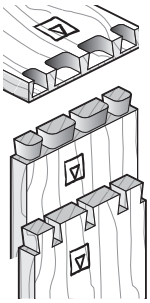
HB Pins
(pins for half-blind dovetail joints)

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.

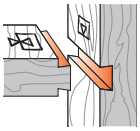


This icon ⍈ indicates the "outside" of a board. All through dovetail pin boards are mounted in the jig with this "outside" face away from the jig (toward you, the operator).

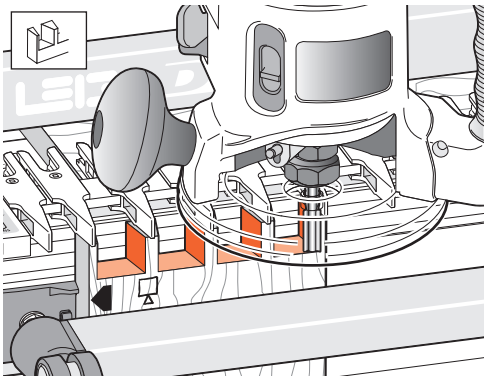


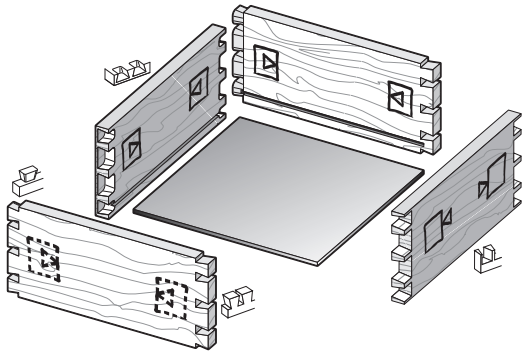
This icon ⊡ indicates the "inside" of a board. All half-blind pin and half-blind tail boards, and through dovetail tail boards, are mounted in the jig with the "inside" face away from the jig toward you, the operator.

This icon ⍈ indicates boards that are mounted both ways e.g. sliding dovetails and box joints.



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

Leigh VRS
Vacuum & Router Support

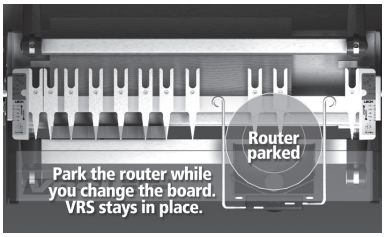
Dust-Free Routing!

The revolutionary Leigh VRS Vacuum & Router Support* provides almost 100% dust and chip collection as well as amazing full width router support. The VRS is a must-have for all Leigh dovetail jig owners.

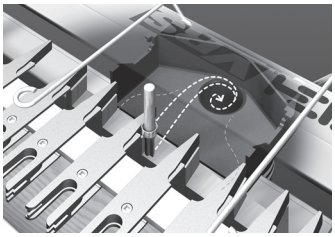
*US patent: USPN 7,507,060 B2 UK patent: GB2446909

Here's How It Works

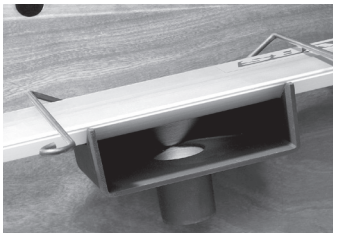
The VRS is mounted on brackets on the front of the jig and the router is supported by the finger assembly and the full width beam of the VRS. The vacuum chute rides under the router support beam. Control arms, attached to the vacuum chute, surround the router. These arms are adjustable to accommodate any router base. As the router moves across the joint, the vacuum chute glides effortlessly from side to side on nylon rollers. The chute is always in perfect position to catch the dust and chips thrown out by the router bit. Chips and sawdust are drawn into the vacuum chute and down through the vacuum hose. Each VRS comes complete with two adaptors to fit all popular vacuum hose sizes and the VRS can be used with a small shop vac or a large built in system. The VRS is easily attached without jig modification. Each VRS comes complete with all mounting hardware needed for any Leigh 24" D-Series jig, all Super Jigs or the earlier model Leigh D1600.



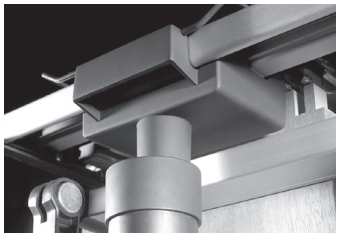
The VRS is a full width router support. When the work piece has been routed on one side of the jig, the router can be effortlessly moved to the other side of the jig and parked while the work piece is being changed. There is no need to remove the router from the jig.



Because the vacuum box is always in perfect position relative to the router bit, the dust and chips coming off of the router bit are automatically drawn into the chute and vacuum hose.

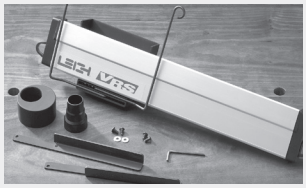


The dust chute rides beneath the router support beam. Control arms ensure accurate positioning of the chute and the size and shape of the chute ensures total waste collection regardless of bit size or joint type being routed.



The VRS will work with almost any shop vac or large vac system. Two adaptors are included with every VRS to handle hose sizes from 1" to 2-1/2".

VRS Vacuum & Router Support Features



- Full width router support
- Easy on Easy Off. Powerful rare earth magnets secure router support beam
- Park the router when not in use
- Vacuum box glides effortlessly under router support beam
- Control arms position vacuum box
- Control arms adjust to any router
- No hoses to obstruct view
- No jig modifications necessary
- Models for all Leigh jigs
- All mounting hardware included
- Adapt to any hose size

Standard Equipment

- Router Support Beam
- Vacuum chute
- Hose adaptors – small and large
- Support rails
- Screws and washers
- Hex key

VRS Models

Item VRS12 Vacuum & Router Support for the Super 12 Dovetail Jig
Item VRS18 Vacuum & Router Support for the Super18 Dovetail Jig
Item VRS24 Vacuum & Router Support for the Super 24 Dovetail Jig

Accessory Kits

Item AC12 VRS12 and 1607-8 Bit Set for the Super 12 Dovetail Jig
Item AC18 VRS18 and 1607-8 Bit Set for the Super 18 Dovetail Jig
Item AC24 VRS24 and 1607-8 Bit Set for the Super 24 Dovetail Jig

SUPERJIG - CHAPTER 1

Jig Assembly, Mounting, and Using the Clamps

Make Sure You Have All the Parts.
Before you start to assemble your Leigh SUPERJIG, 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. 2 support brackets
2. 4 cam-action speed clamps
   4 cam clamp pivot nuts
3. 1 **e7-Bush** & Nut with Pin Wrench
   2 each, front and rear Side Stops
   1 Spacer
4. 2 support knobs
5. 4 clamp springs
   4 clamp T-bolts
   4 flat washers
   4 T-bolt nuts
   4 Jig Hold-down Wood Screws No.10 x 1"
6. 2 scale thumbscrews c/w nylon washers
7. 2 Dovetail bits, 1 straight bit, 1 Collet Reducer
8. Square-head guidefinger screwdriver

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

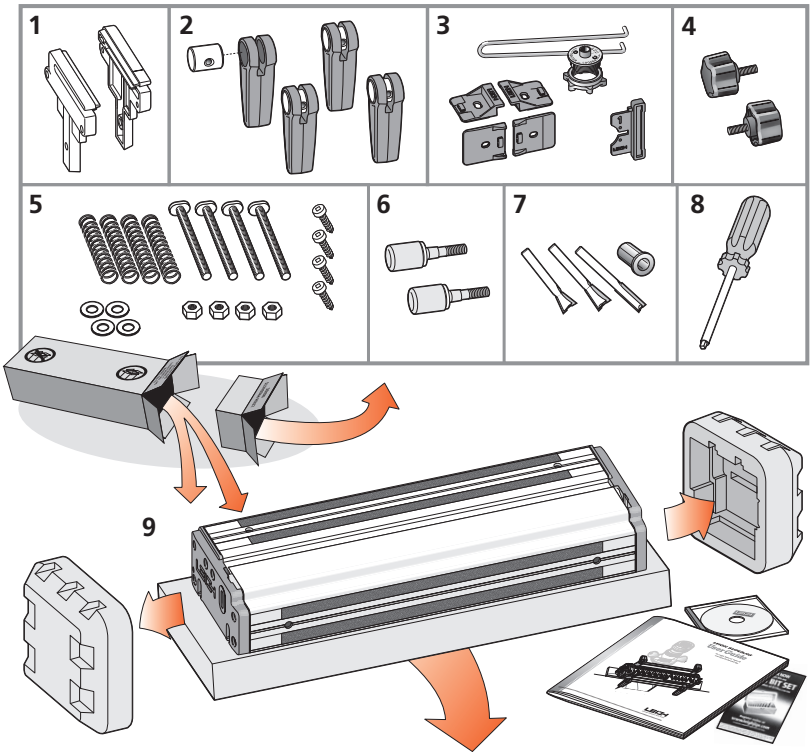
The main carton contains:

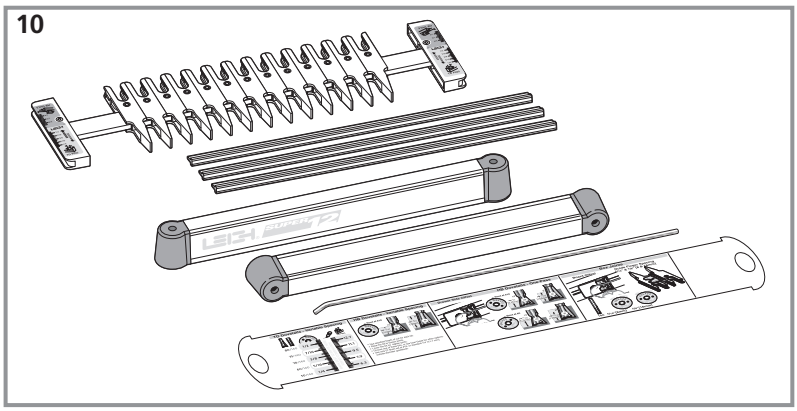
9. 1 main jig body
   1 Leigh jig User Guide
   Warranty/Registration Card
   DVD instructional video (English only)

The large inner box contains:

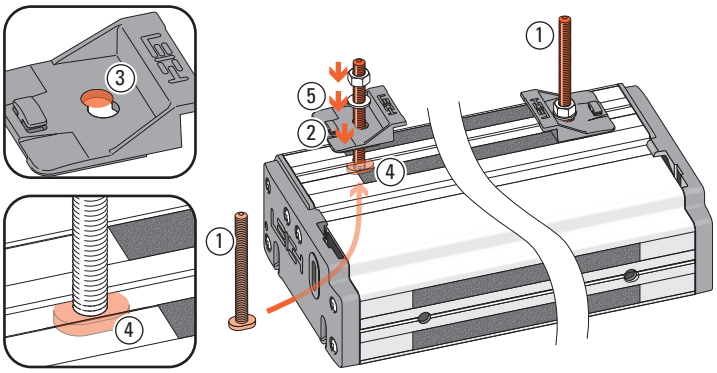
10. 1 finger assembly on a bar, complete with scales
    Super*12, with 13 guidefingers*
    Super*18, with 16 guidefingers*
    Super*24, with 19 guidefingers*
    2 lengths bridge material – see Chapter 9
    1 crosscut fence (same as bridge) – see Chapter 13
    2 clamp bars c/w end plugs
    1 Nylon Stop Rod – see Chapter 10
    1 Quick Reference pull-out card

If any items are missing from your jig, contact your supplier or Leigh Industries immediately.

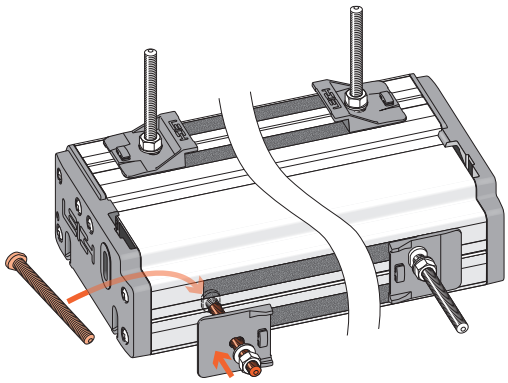




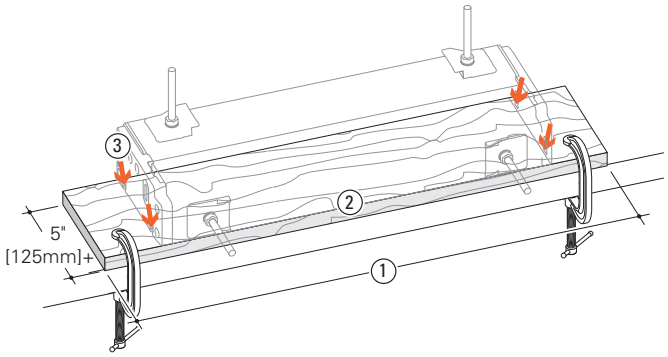
Important Note
Mount your jig securely, assemble it completely, and make sure you have read and understood the Safety section of this user guide before using the jig.



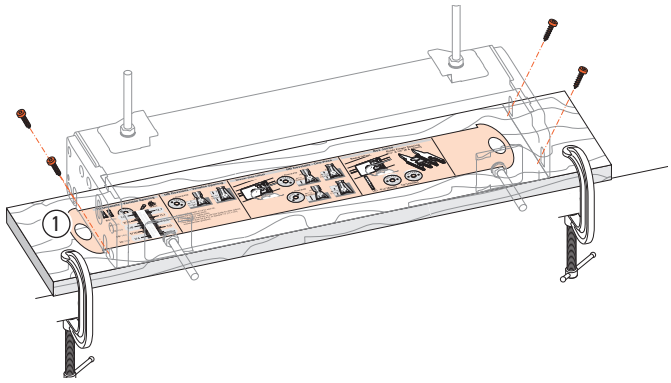
1-1 Install Side Stops Insert two clamp T-bolts through the rear jig body holes ① and place a "stepped" rear side stop over each bolt ②, **using the rear part of the double-hole** ③. Make sure the **bolt's "T" is between the extrusion ribs** ④. Don't forget the steel washer ⑤ and use a ½"[13mm] wrench to tighten the nuts.



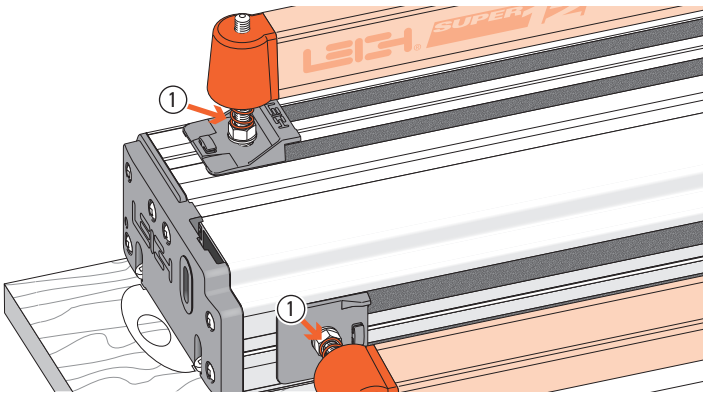
1-2 Insert the two front clamp T-bolts through the jig body holes. **Make sure the bolt's "T" is between the extrusion ribs.** Place a front side stop and steel washer over each bolt **but only finger-tighten the front nuts;** you will need to index these to the rear stops later.



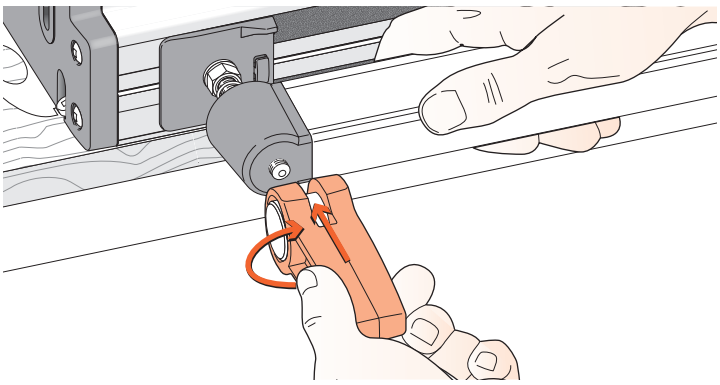
1-3 Prepare a flat ¾"[20mm] mounting board (plywood or MDF), at least 5"[125mm] wide. Length ①: 26" for Super12, 32" for Super18, 40" for Super24 [660, 830 or 1000mm respectively]. Clamp it to the front of your bench. Center the jig on the board, front face slightly overhanging the board edge ②. Mark the four hold down screw positions. Drill small pilot holes at a slight angle ③.



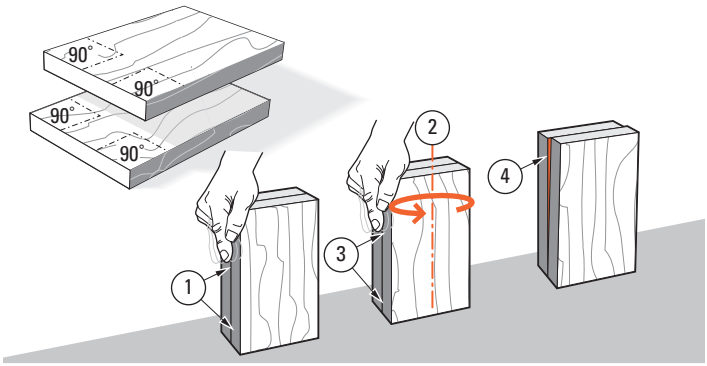
1-4 Quick Reference Pull-Out Decide which end of the jig you wish to access the "Quick Reference" instruction pull-out and place the jig over the pull-out ①. Using the screws provided; screw the jig to the board. Make sure that the pull-out slides freely.



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

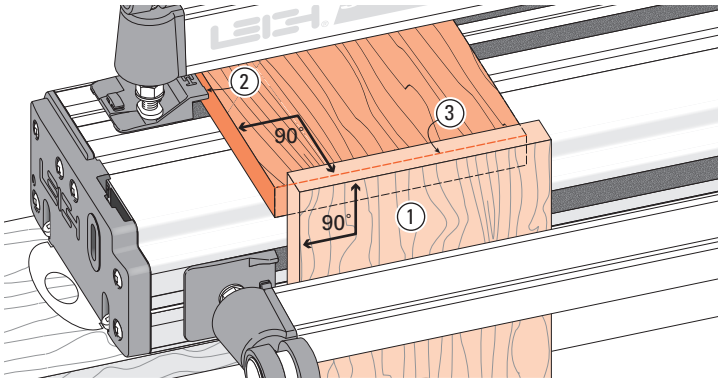


1-6 Screw a clamp lever assembly onto each T-bolt.

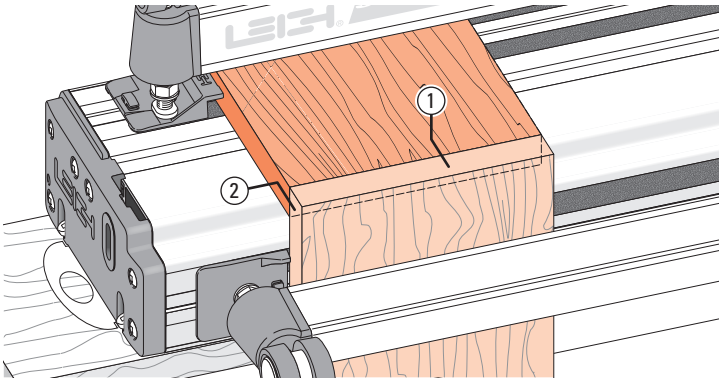


1-7 Now you need two boards about ¾" x 6" x 8" long [20 x 150 x 200mm]. **Both must have perfectly square ends to accurately index the front and rear side stops.**

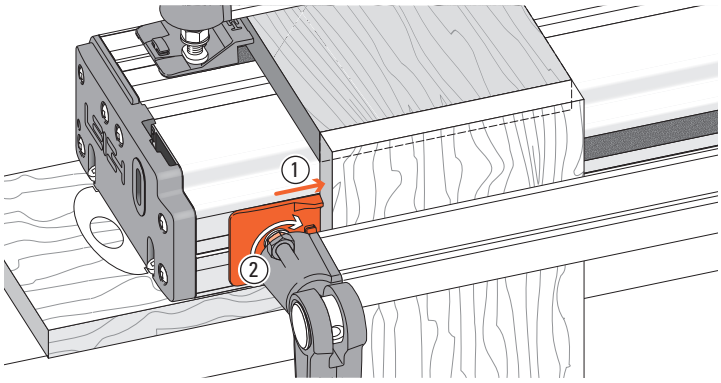
Check for squareness: stand both pieces vertically on a flat surface. Make sure side edges are flush at bottom and top ①. Turn one piece around on its end ②. If side edges are flush top to bottom ③, the boards are square. If not, ④; cut two that are.



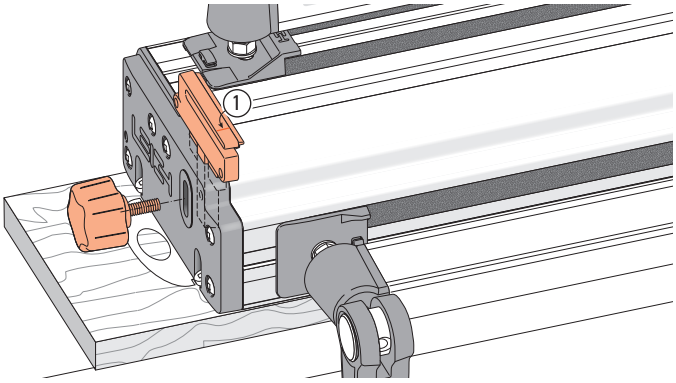
1-8 Align Front Side Stops Clamp one **square ended** board in the front, not touching the left side stop and with the top edge above the top surface of the jig body ①. Place the other square board in the rear clamp, tight against the left rear side stop ②, with its front edge touching flush across the rear of the vertical board ③. Tighten the rear clamp. *Note: Do not overtighten the right hand clamps during this step.*



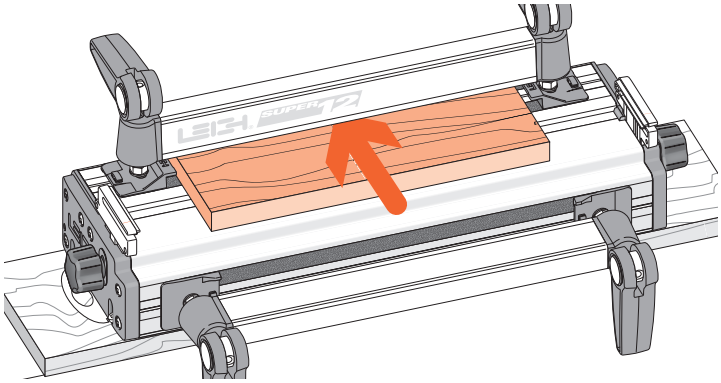
1-9 Now loosen the front clamp and position the front board so its top end edge is perfectly flush and level with the top face of the horizontal board ① **and**, both boards left edges are also perfectly flush ②. Tighten the clamp.



1-10 Now push the front left side stop inwards and flush against the vertical board ① and firmly tighten the clamp bolt nut. **Repeat operations 1-8 thru 1-10 at the right side of the jig.** The front and rear side stops are now indexed to provide accurate board alignment in all routing procedures. You may now remove the boards.

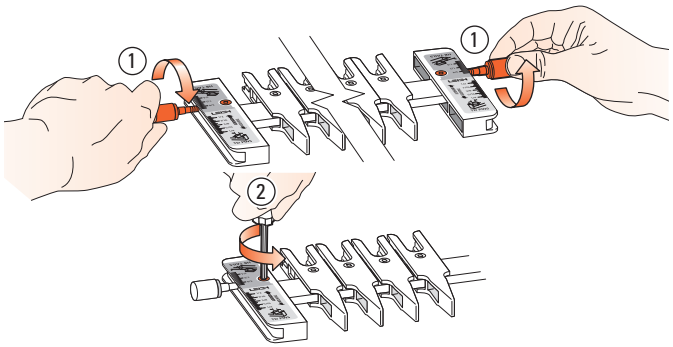


1-11 Insert the right and left support brackets. Attach the knobs, raise them to full height and tighten the knobs.
Note: For clarity, the set lines on support brackets are shown in red in this user guide. The actual bracket lines are black.

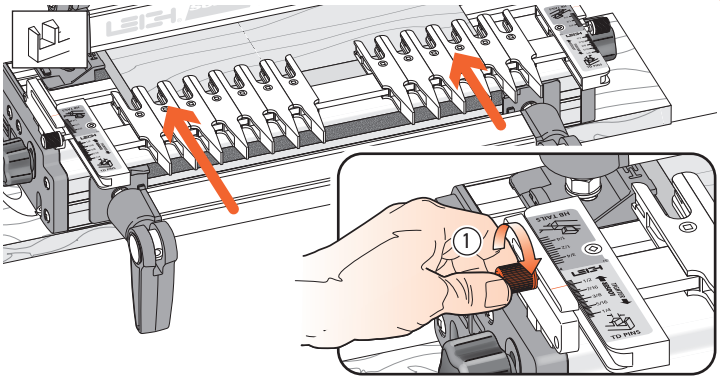


1-12 Make up a ¾"x 6"[20 x 150mm] finger support board as shown. Lengths: 11"[280mm] for Super12, 17"[430mm] for Super18, and 23"[600mm] for Super24. This board will support the guidefinger assembly **in all front-clamping vertical board modes.** Clamp it in the rear of the jig.

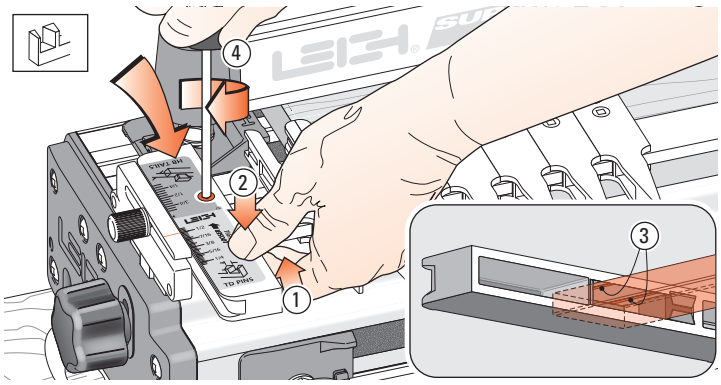
IMPORTANT



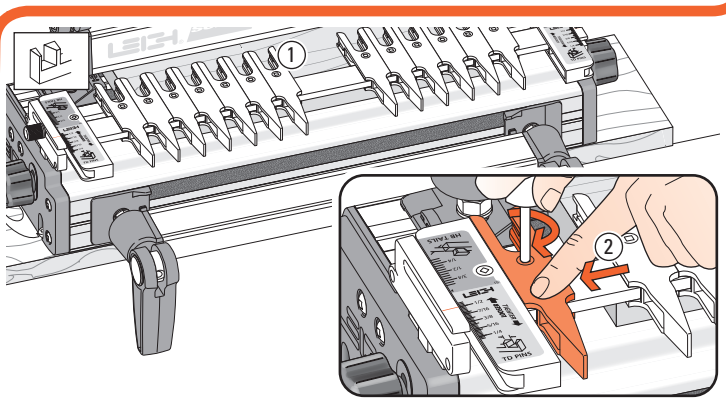
1-13 Before using the jig, the scales must be set into position on the finger assembly. Install the two thumbscrews a few turns into the scales ①. **Loosen the scale lock screw ② at each end** by one turn only.



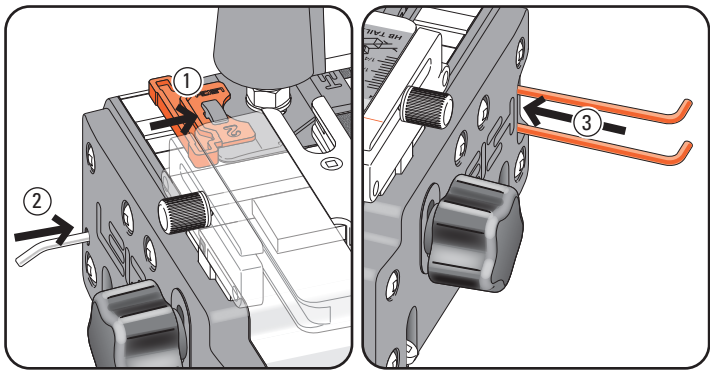
1-14 Slide the finger assembly onto the support brackets, in the TD Pin mode and set on the ½"[12,7mm] setting. **First, tighten both thumbscrews ①.**
Do not lower the assembly onto the finger support board.



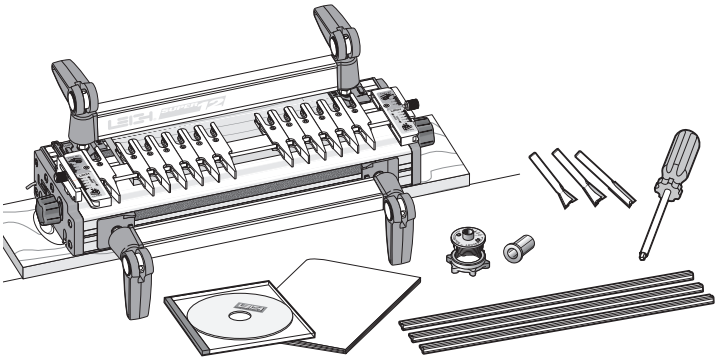
1-15 **Pull up on the finger bar ① while pushing down on the scale ②** to ensure the bar is touching the two registration pads ③ inside the scale. **Maintain pressure and tighten the scale lock-screw ④**. Repeat at the other end. To maintain correct finger assembly alignment, follow this procedure whenever you remove the scales from the finger assembly.



1-16 With the finger assembly in TD Pins mode ①, move the outer end guidefingers to touch the scale block and lock in position ②. *Note: the outer end guidefingers are used for router support only.* When guidefingers are loosened, the finger assembly should easily slide on the support brackets. If not, apply a little candle wax to the mating surfaces.

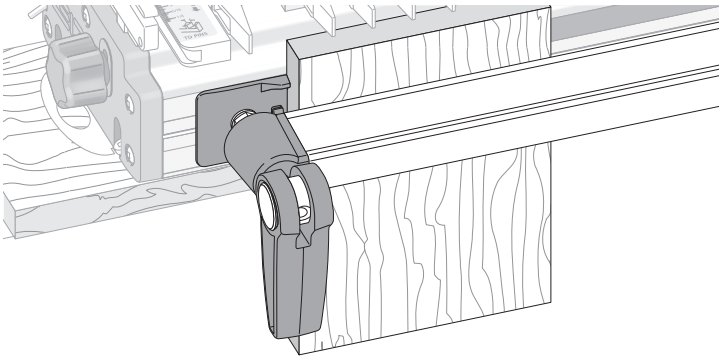


1-17 Finally, slip the Spacer on the outside of the left rear side stop ①, the nylon stop rod through its storage hole in the left end ② and the pin wrench in its slot in the right hand end housing ③.

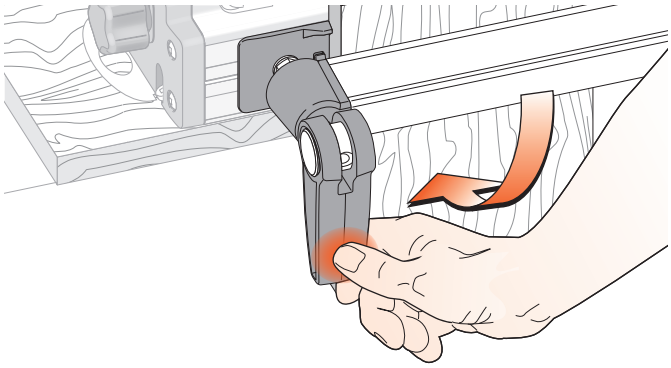


1-18 With Superjig assembled and mounted, you have some items left over:

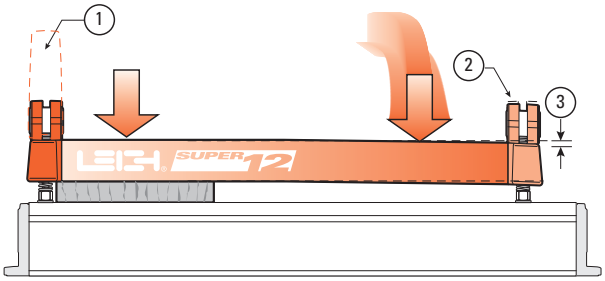
1 Leigh jig user guide
1 DVD instruction video (English only)
1 Leigh e7-Bush and nut
2 Dovetail bits
1 Straight bit
1 Collet Reducer
1 square-head screwdriver
3 bridge-piece/crosscut extrusions



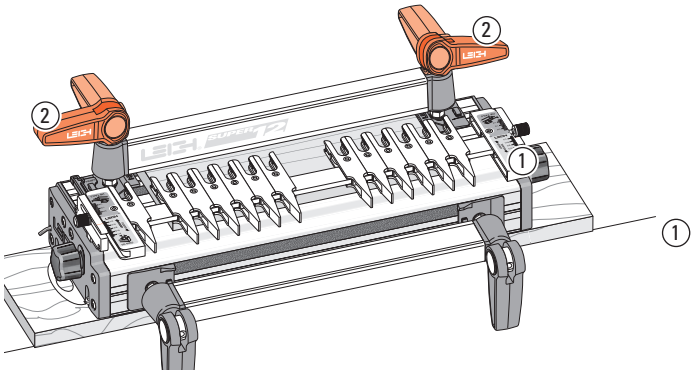
1-19 The Jig Clamps Use a piece of flat, even-thickness wood to familiarize yourself with the jig cam clamps. You will operate the cam-action speed clamps every time you use the jig, so get used to the feel of the clamps first. **Do not force the cam-action speed-clamp.** It has great leverage, and excessive force may damage the workpiece or the jig.



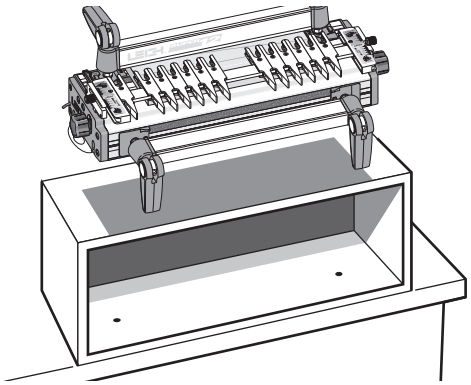
1-20 A smooth, firm action is enough to engage the clamp. Rule of thumb: If you can't throw the lever by pressing the end of it firmly with your thumb, reduce the tension. **Firm thumb pressure is about right.** A few minutes of trial and error will help you feel the right clamp tension.



1-21 For all but the wider workpieces, you need only operate the clamp on the workpiece end of the jig to release the board ①. For narrower boards, the clamp at the free end ② should be just tight enough to bow the clamp bar about 1⁄16"[2mm] ③.

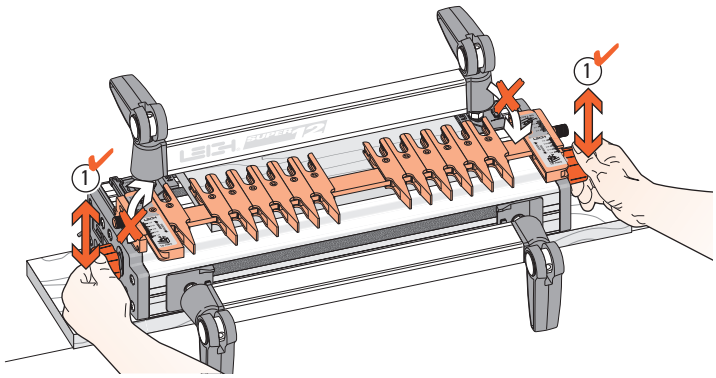


1-22 When engaged, the front clamp levers should normally point down and the rear levers should point away from the operator ① or up to 90° either side ② as required to obtain the optimum clamping pressure.

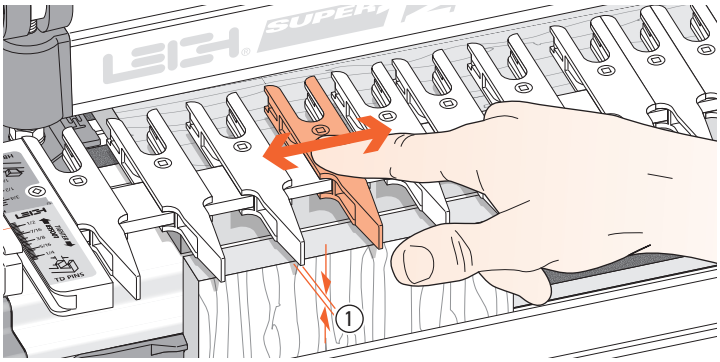


1-23 To gain height for a more comfortable working position or for routing longer boards, mount the jig to a box that can be bolted securely to a bench.
See also 15-13. ■

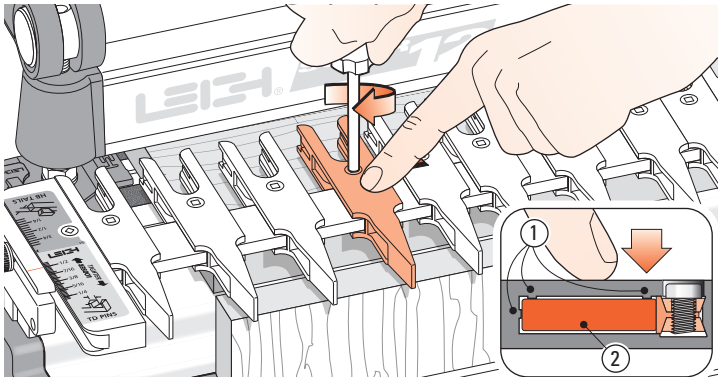
Adjusting the Finger Assembly



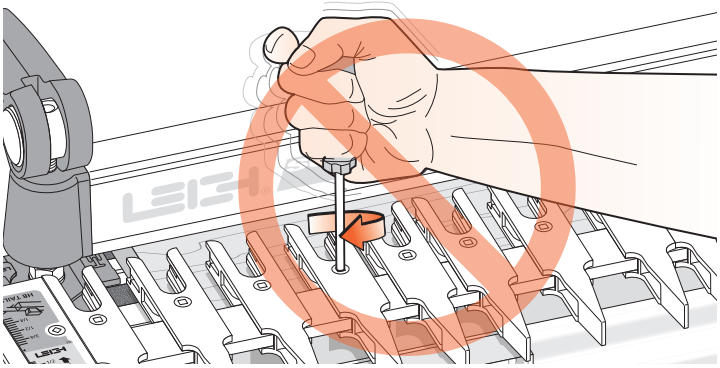
2-1 Practice with the finger assembly height adjustment. Loosen the support bracket knobs and hold them firmly. Raise and lower the assembly evenly, **keeping it level** ①, and tighten the knobs to lock it at various heights. **Do not raise or lower only one end of the finger assembly.**



2-2 To practice adjusting the guidefingers, put a board in the front clamp. **Always raise the finger assembly slightly, approximately 1⁄16"[2mm] above the spacer board and/or workpiece** ①**.** This is essential to allow the guidefingers to move freely on the guidefinger bar and ensures that the fingers will be level and flush when locked up. Move the guidefingers by pushing on the middle to slide them along the guidefinger bar.

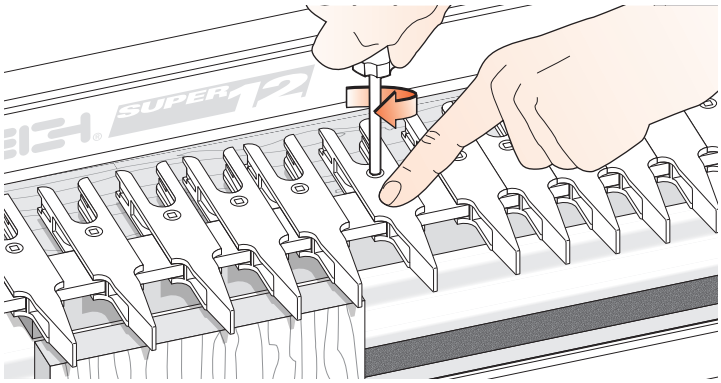


2-3 Loosen about half the guidefingers and practice unlocking, moving, positioning and re-locking them. **Always press on the center of the guidefinger when tightening the screws.** This ensures that the small pads ① on the inside of the finger contact the face of the finger bar ② and keeps all the fingers level.

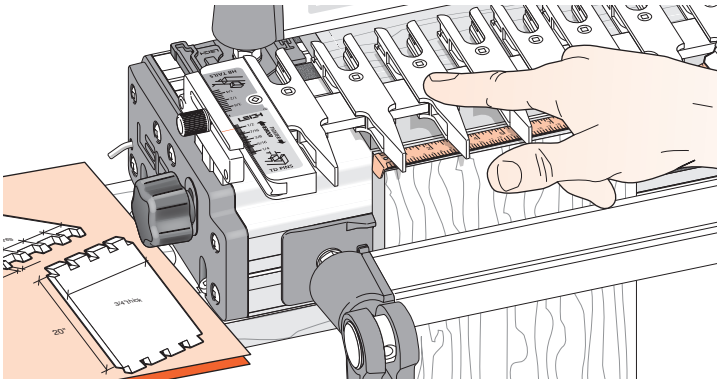


2-4 Do not over-tighten the guidefinger lock screws. The Leigh screwdriver provided will give ample torque for easy lock-up without strain.

Hint: Fingertip tighten a loose screw until the slightest resistance is felt. Do not tighten the screw more than half a turn (180°) from the first contact.



2-5 **Always tighten unused guidefingers before routing,** as router vibration may cause loose screws and finger lock parts to fall out and be lost.

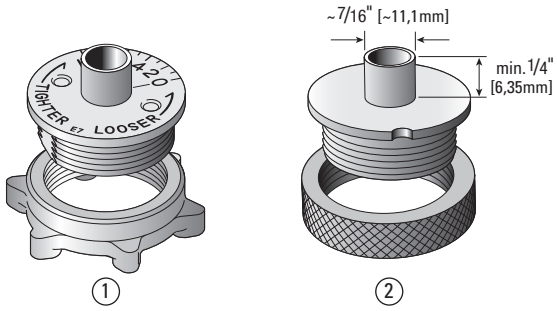


2-6 You can adjust the guidefingers by eye, or by measurement to suit a set of plans. ■

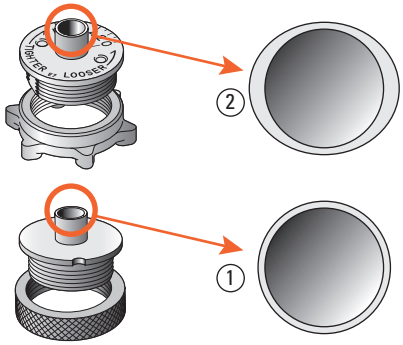
The Leigh e-Bush and Optional Guidebushes

The guidebush is the vital link between router and jig. All joints created on a Superjig 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.*

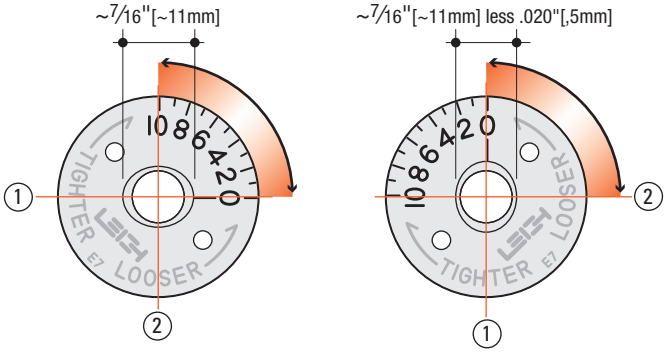
**Supplied with each Superjig. U.S. Patent No. 8,256,475. UK Patent No. GB2443974. Patent Pending in Canada.*



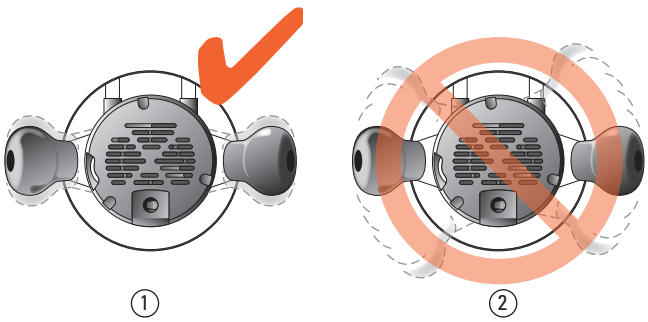
3-1 The Leigh **e7-Bush** ① is used to rout through, half-blind, single pass half-blind and sliding dovetails on a Superjig. The elliptical design provides precise joint fit adjustment for box joints and sliding dovetails. A round ~7/16"[11,1mm] guidebush ② (min. barrel length 1/4"[6,35mm]), can be used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



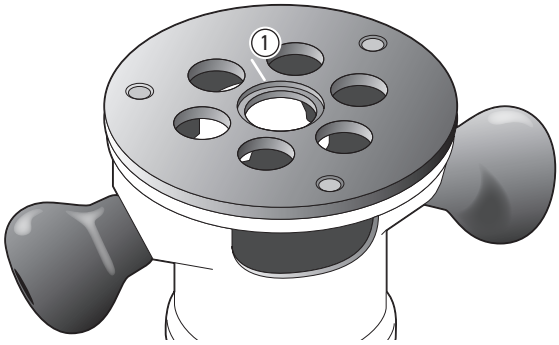
3-2 The Leigh **e7-Bush** that comes with your Superjig is a unique template guidebush that is adjustable in size. Unlike regular circular template guidebushes ①, the **e7-Bush** is slightly elliptical in cross section ②. This simple innovation effectively changes the guidebush "active diameter size"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



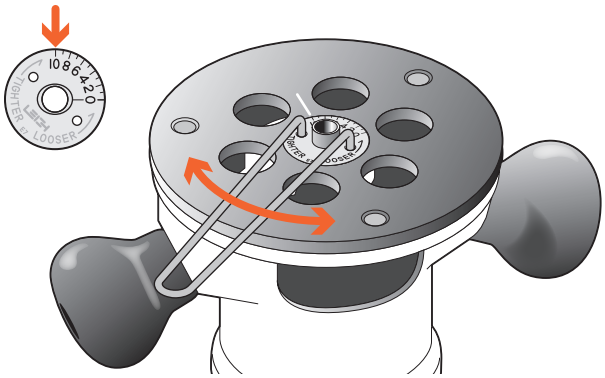
3-3 The **e7-Bush** (~7/16") fits the router base or a guide bush adaptor in the base (*see Appendix I).* The ellipse/oval shape has a major axis ①~7/16"[11,1mm], and minor axis ②~7/16"[11,1mm] less .020"[,5mm]. Turning the e-Bush 90 degrees in the router base changes the active diameter by .020"[,5mm]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



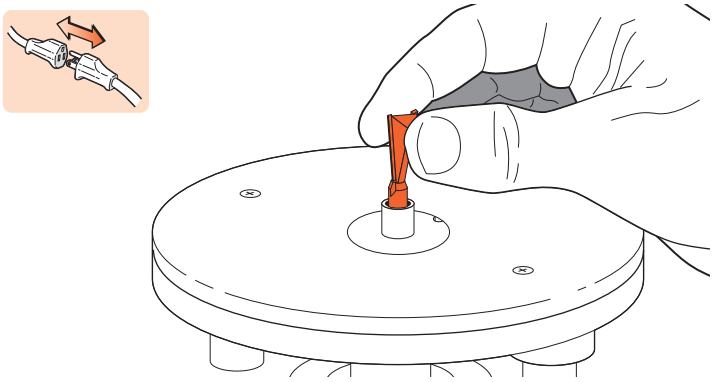
3-4 Here's how it works. In normal use on a dovetail jig, the operator does not rotate the router more than a few degrees either way ①. In fact, because of potential bit-to-bush eccentricity problems it is advisable to minimize router rotation on jigs ②.



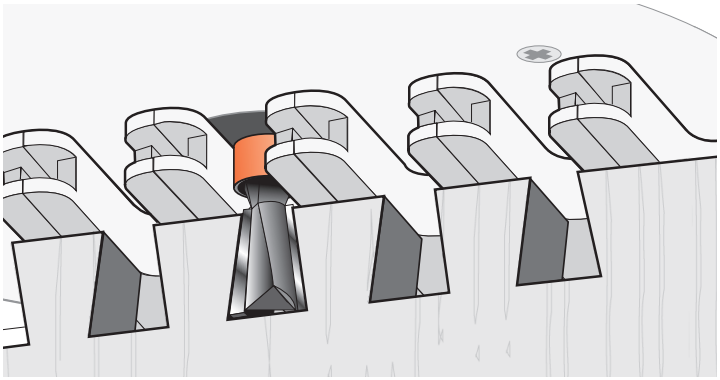
3-5 Establish the orientation in which you normally hold and operate the router on the jig. Now, up-end the router in the same orientation. Make a small scratch line or permanent ink mark on the router base or e-Bush adaptor at the 12 o'clock position ①.



3-6 Fit the **e7-Bush** to the router and align No.10 to the scratch mark. The No.10 setting is used for all through and variably spaced half-blind dovetails on Superjigs. Settings for single pass half-blinds, box joints and sliding dovetails are described in applicable chapters. **Be sure to retighten the e-Bush nut after each adjustment.**



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



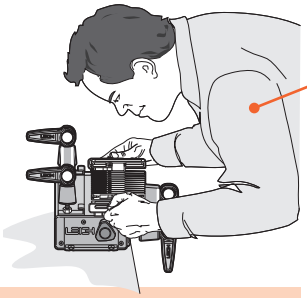
3-8 The projecting part of the guidebush runs along the side edge of the guide finger. The rotating bit cuts the wood only, and touches neither the guidebush nor the guide surface. ■

Basic Jig Functions and Scale Modes

Here are the basics for understanding the different Superjig dovetail modes and settings.

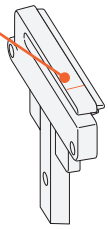
THE FOUR SCALE MODES

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



Reading scales from directly above helps sight the lines accurately.

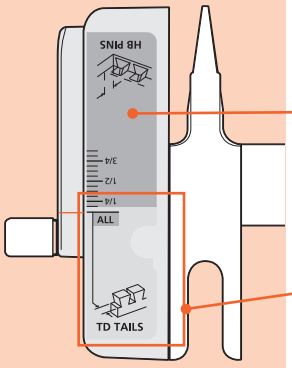
This line is for the finger assembly scales. **The line is illustrated in red for clarity in this user guide, but is black on the jig.**



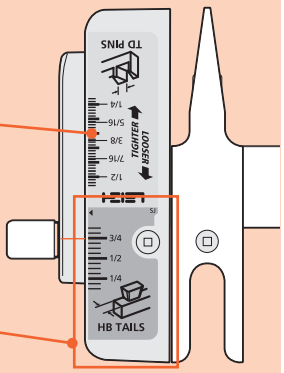
Note: Inch scales are shown here. Millimeter scales have similar layouts.

The **inactive** scale is always on the rear of each scale assembly and is upside-down.

The **active** scale is always on the front of each scale assembly.



1. TD TAILS



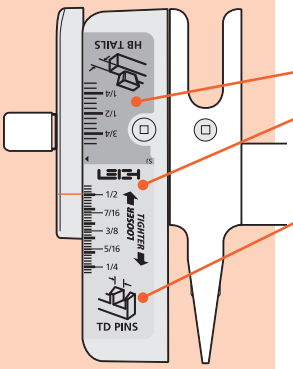
3. HB TAILS

Scales are color coded.

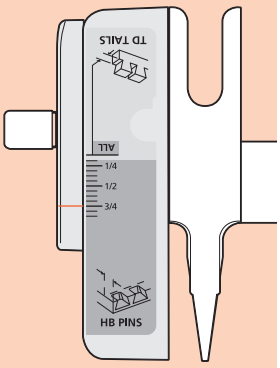
- Green: Half-Blind Dovetails.
- Silver: Through Dovetails.

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

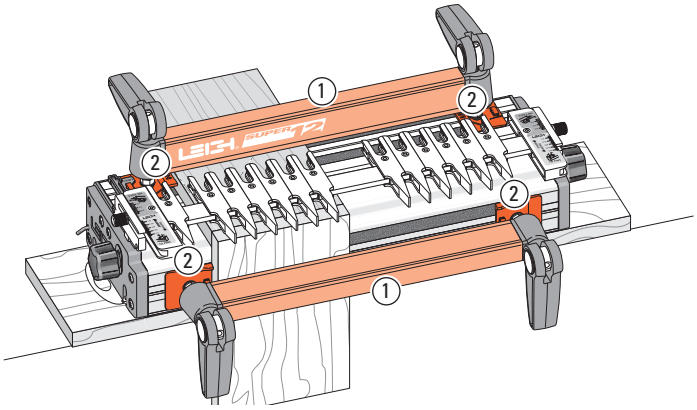
The specific settings for each scale are fully described in the appropriate chapters.



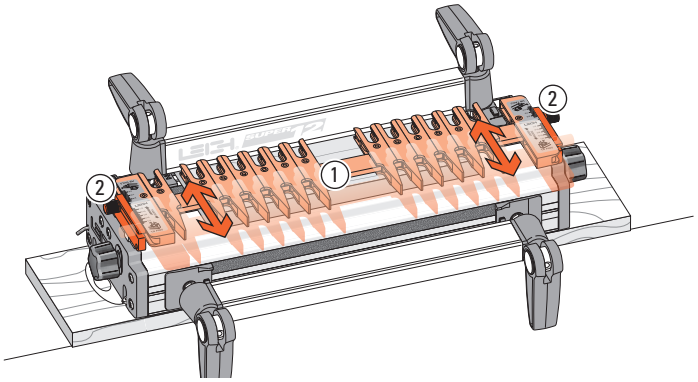
2. TD PINS



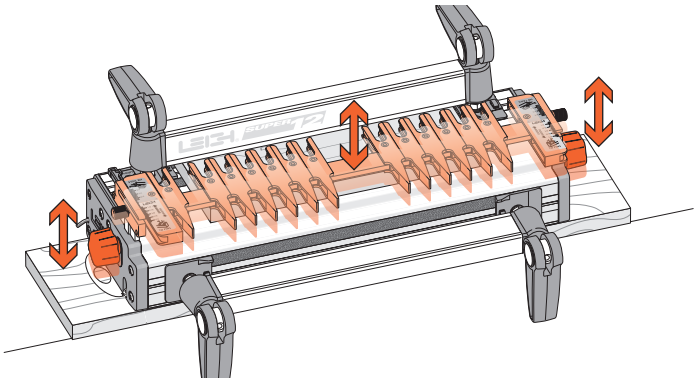
4. HB PINS



4-1 The two clamp bars ① hold workpieces horizontally or vertically. The side stops ② align the boards in the correct position each time.



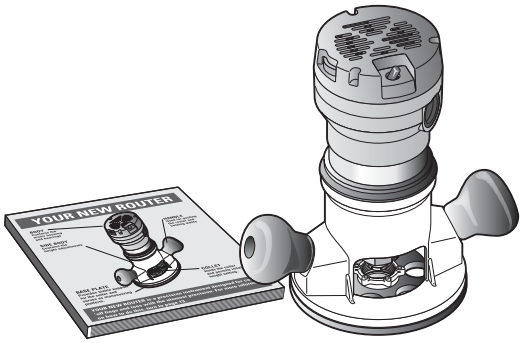
4-2 The guidefinger assembly slides in the support brackets above the workpiece. The finger assembly is adjusted in or out using calibrated scales on each end to suit different thicknesses of vertical boards.



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

Using Your Jig Safely

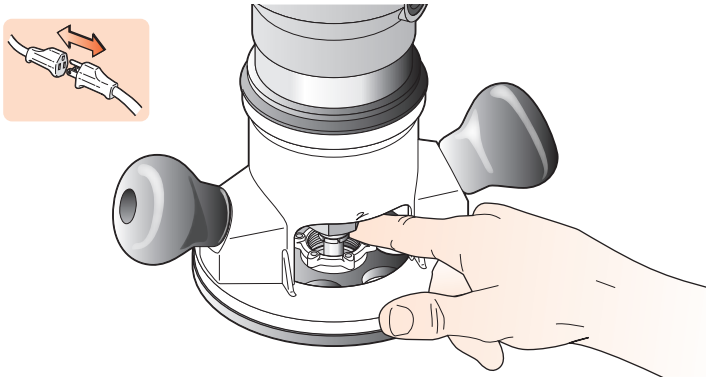
Safety is not optional.
Read and follow the recommendations in this chapter.



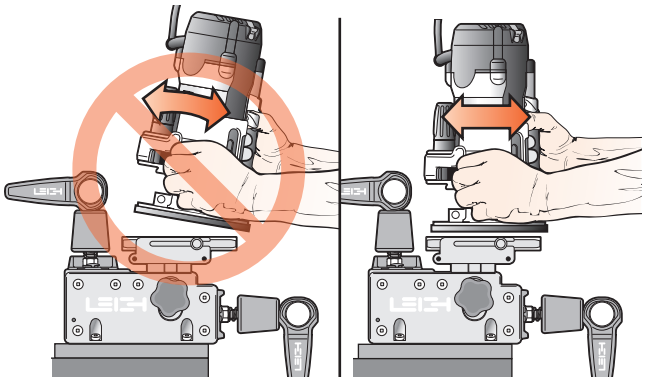
5-1 **Read the user guide that came with your router. It is essential to understand the router manufacturer's instructions completely.** Always operate variable speed routers at the fastest possible speed.

5-2 Always wear approved safety glasses.
Always wear hearing protection.
Protect yourself from harmful dust with a face mask.
For complete comfort and convenience, get yourself a Leigh VRS (Vacuum & Router Support) to match your jig model.

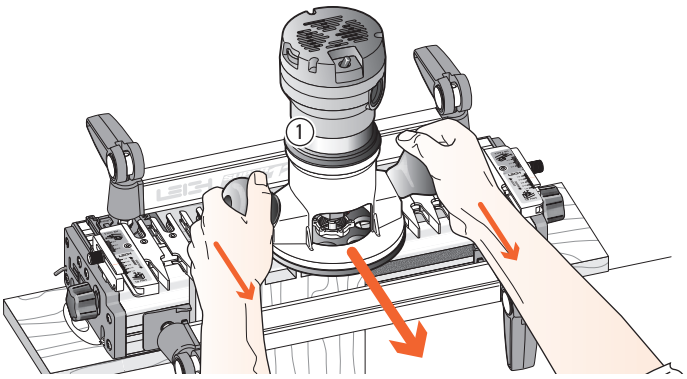
5-3
Never drink alcohol or take medications that may cause drowsiness when you will be operating a router.



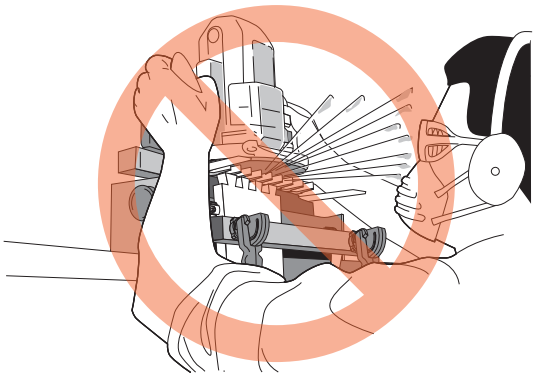
5-4 Always disconnect the power source from the router when fitting bits or guidebushes, or making adjustments.
Before connecting the router to the power source, make sure the bit and collet revolve freely in all the areas you plan to rout, and the bit does not touch the guidebush or jig.



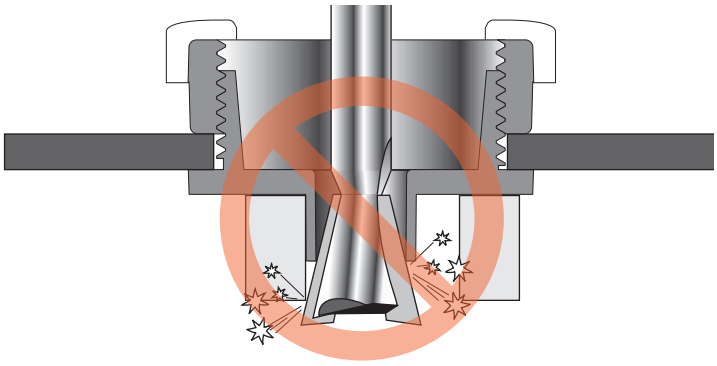
5-5 Do not tilt the router on the jig. Keep the router flat on the jig assembly. *Note: The optional Leigh VRS attachment prevents router tilting.*



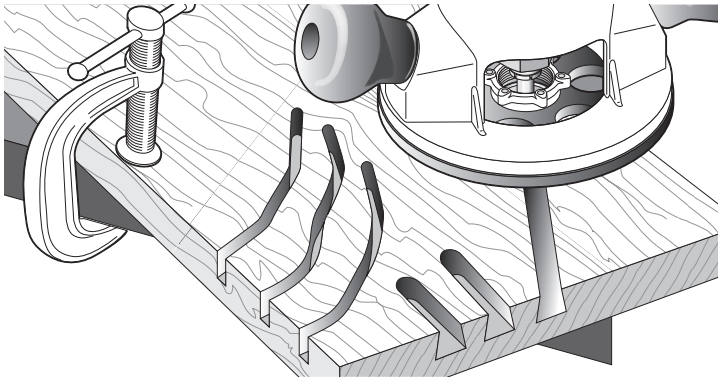
5-6 If you insist on removing the router from the jig while it is still revolving, **always pull it straight off the jig horizontally, and do not raise or lower the router until it is completely clear of the jig.**



5-7 **Do not rout at face level.**



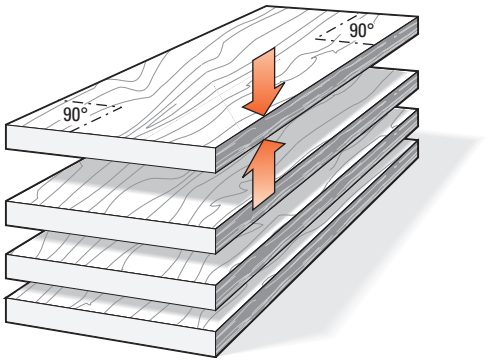
5-8 **Never release the router plunge mechanism when using dovetail bits.** Check if your plunge router has a stop nut to prevent this from happening accidentally.



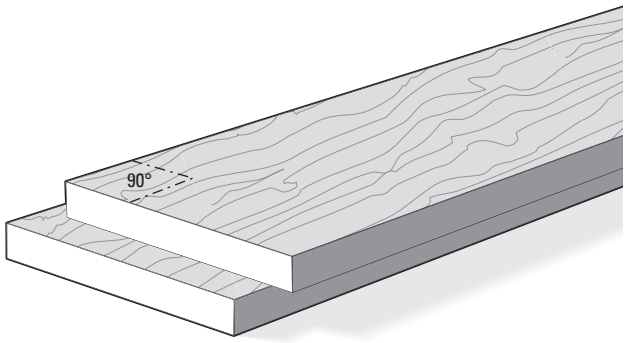
5-9 If you have never used your router before, be sure to follow the router manufacturer's instructions for its use. Make plenty of simple open-face practice cuts *without a guidebush* before you try to use the router on the Leigh jig. You must, of course, **always use a guidebush when routing on the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

Wood Preparation

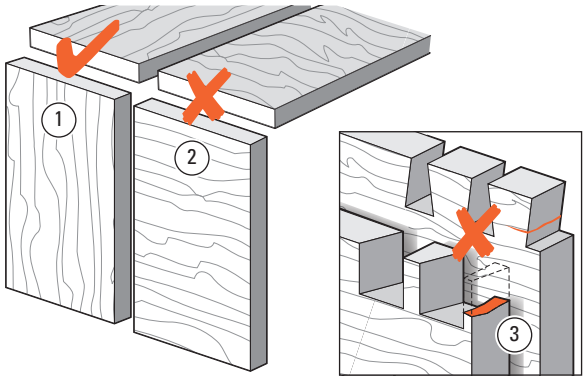
"Garbage In - Garbage Out"...
This adage of the computer age stands equally true for dovetail jigs.



6-1 It is vital for accurately aligned joints that stock used on the Superjig should 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.*



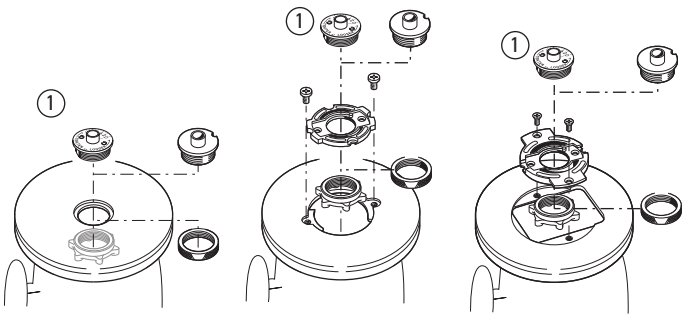
6-2 You will want to test the jig, so prepare some ¾"x 5½"[20x140mm] boards. Cut them to length as you need them for the jig tests you want to perform. Use them for practice with the jig's various joint modes so you can see how the different modes work. **Remember, though, that two boards of different thicknesses can be joined just as easily.**



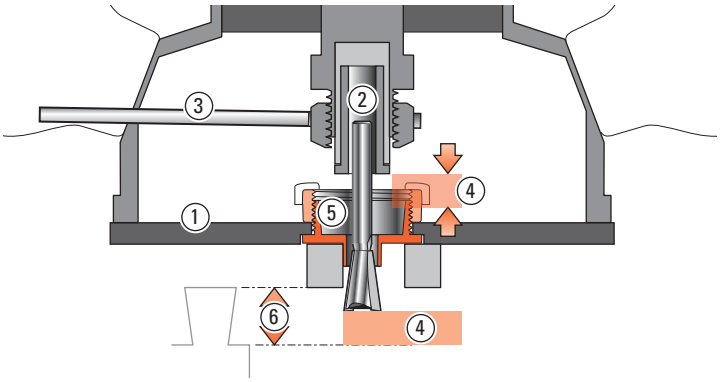
6-3 ⚠ Dovetail joints are intended for joining end-grain to end-grain ①. Attempting to cut dovetails in side-grain ② does not work because:

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. ■

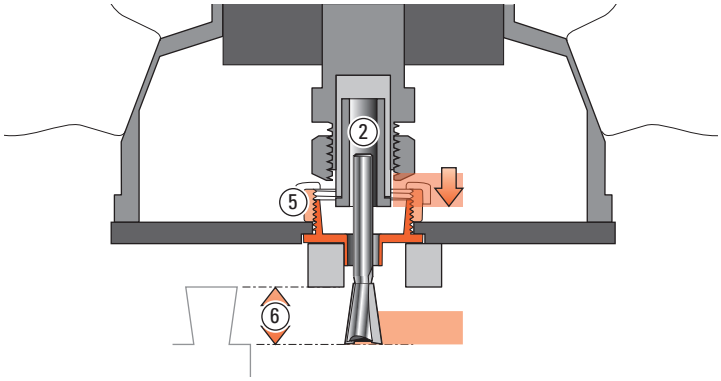
Router Preparation



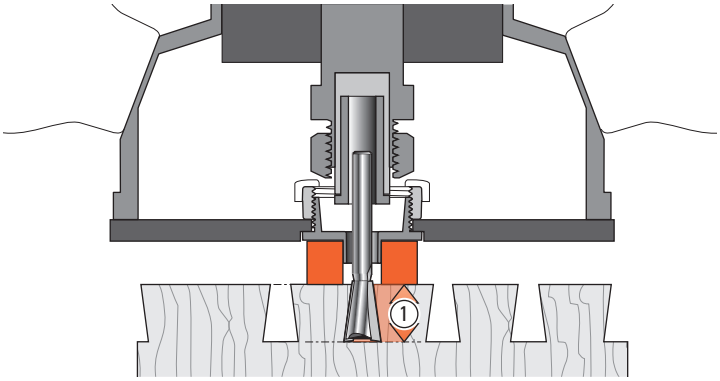
7-1 Fit the **e7-Bush** ①. One is included with your Super Jig. Some guidebush adaptors may have to be modified to allow adjustment rotation of the **e7-Bush** in the base. *See page 67.*
If the e-Bush is incompatible with your router, any 7/16[11,1mm] guidebush (min. depth 1/4" see page 67) will work for all but box joints on the Superjig.



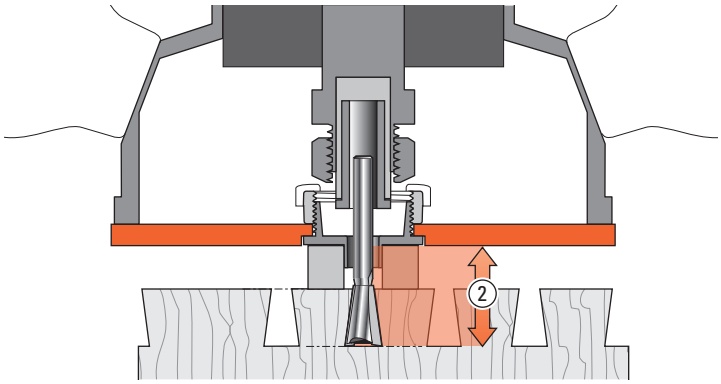
7-2 When fitting a bit to the router ①, **fit the shank as far into the collet ② as possible.** Always rout with the collet as close to the guidebush as possible. Usually you can't securely grip the collet nut with a wrench ③ if the collet is at its optimum low position. Fit the bit so that the remaining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



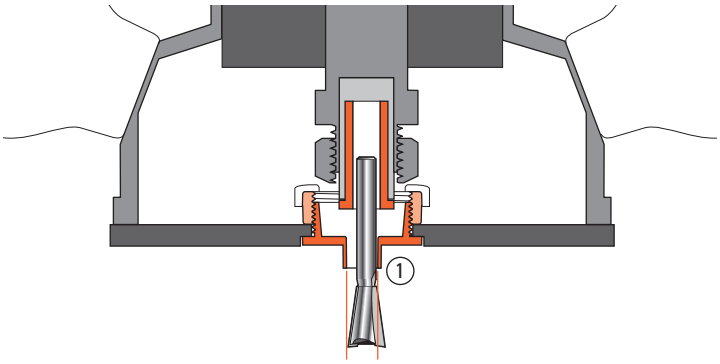
7-3 Tighten the collet ② securely and lower the collet to adjust the depth of cut ⑥, but make sure the collet does not contact the guidebush ⑤.



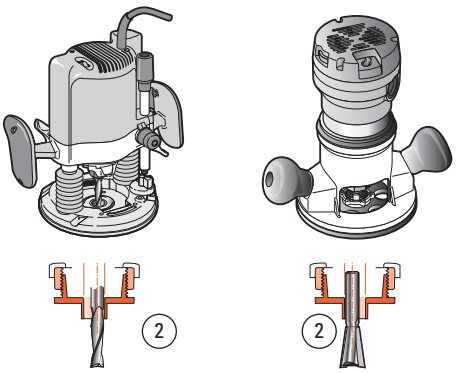
7-4 Depth of Cut: The depth of cut always refers to the actual depth of the cut into the wood beneath the guidefingers ①.



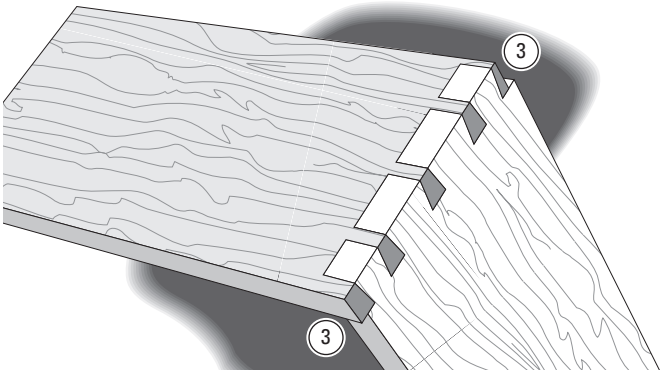
7-5 Depth of cut is **not** the distance the bit projects from the router base. This is **bit projection** ②. This user guide generally refers to depth of cut. Bit projection ② is always .500"[12,7mm] more than depth of cut.



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. ■