

## Single Pass Half-Blind Dovetails

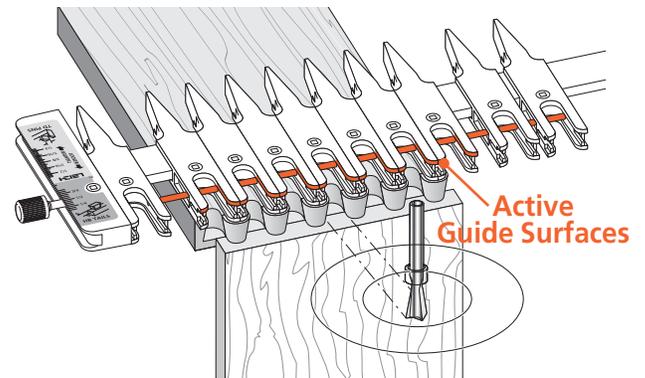
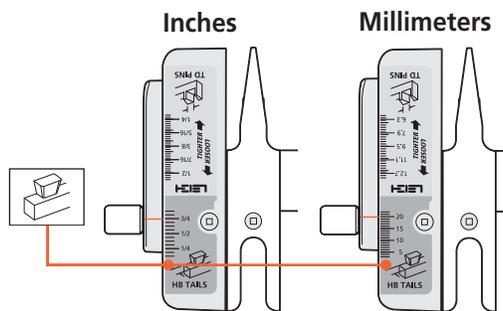
Why rout "single pass" dovetails on a variably spaced Leigh jig? Well, you just may need to reproduce or restore a late 19th or early 20th century drawer which has similar, machine made joints. Or, if you are making a lot of drawer boxes and are not so concerned with the traditional "hand-cut look", then routing both drawer fronts and sides together does go a little faster.

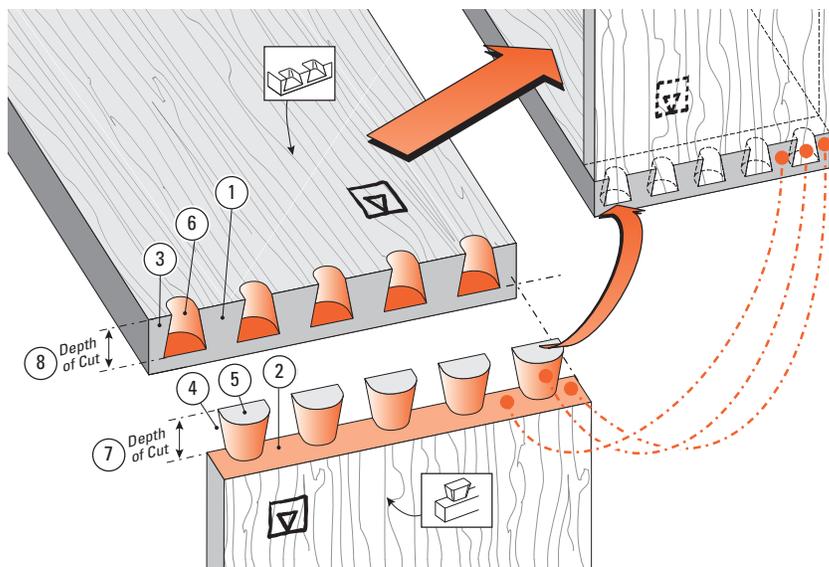
Only one mode is required:

### Half-Blind Dovetail Tails (HB TAILS) mode

#### MODE ICONS

Illustrations in this user guide include the correct *mode* icon for the current instruction. The icons are also used in the instruction text.



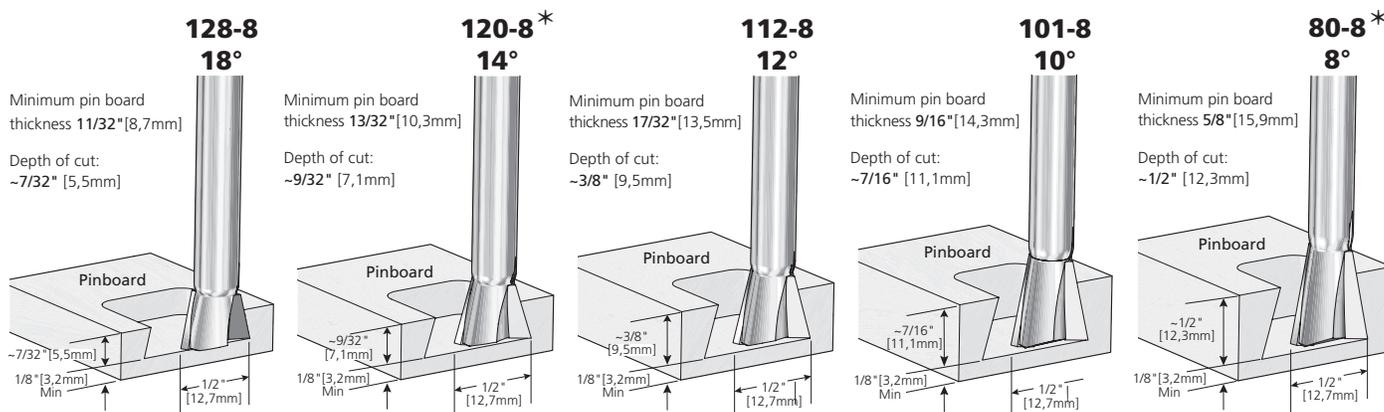


**10-1 Single Pass Half-Blind Dovetail Terminology:**

- ① Pins
- ② Pin sockets
- ③ Half-pins
- ④ Half-pin sockets
- ⑤ Tails
- ⑥ Tail sockets
- ⑦ Depth of Cut (tails)
- ⑧ Depth of Cut (pins)

The pins fit in the pin sockets. Joints almost always begin and end with a half-pin as shown.

**10-2 Cutting Depth for Single Pass Half-Blind Dovetails**

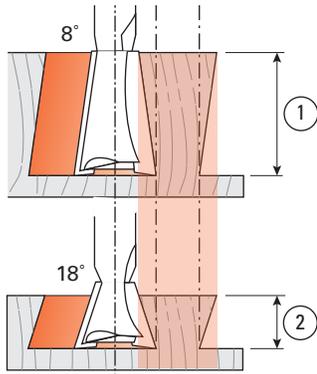


**Note:** Add at least 1/8" [3,2mm] to the depth of cut for board thickness. \* Included with jig. ~ Symbol for "Approximately"

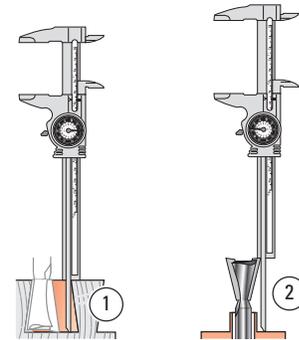
**! IMPORTANT! Bit depths of cut for "single pass" dovetails are not the same as for variably spaced joints.**

- Depth of cut must be as specified for each of the five bits shown above. *Exception: See fig.11-26. Note: Leigh bits 101-8, 112-8 and 128-8 are optional.*
- Raising the bit above its specified cutting depth will result in loose joints and may damage the jig, bit and/or guidebush. A lower setting will result in tighter joints that may not fit together.
- Small Depth of Cut adjustments will allow for joint fit tightness. **See why in Steps 9-3 to 9-5.**
- Choose one of the five, 1/2" [12,7 mm] diameter dovetail bits shown above.
- Fit the provided Leigh e7-Bush to the router as shown below and set at No.10, or use a standard 7/16" [11,1 mm] guidebush (min. barrel depth 1/4" see page 67).

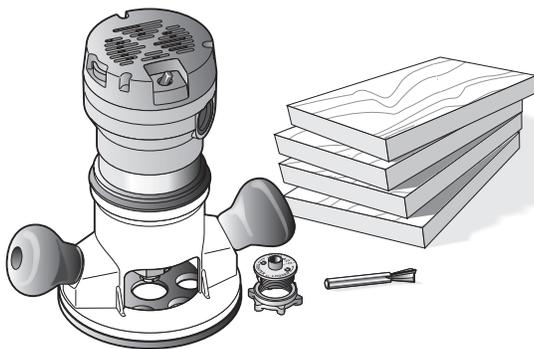




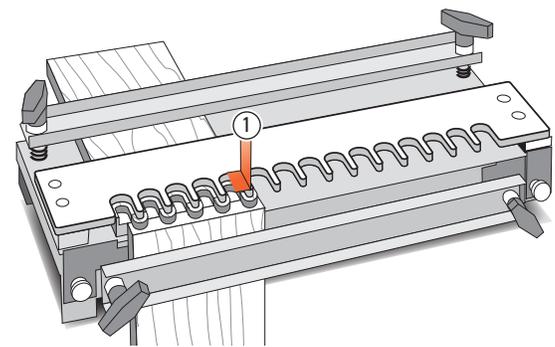
**10-3 Bit Angle and Depth of Cut.** Half-blind pins and tails are routed with the **same** dovetail bit, the **same** guidebush, and the **same** depth of cut. A different depth of cut requires a different angled bit. Leigh offers five different angled dovetail bits for a range of cut depths. A lesser angle, say 8°, for a deeper cut ①; a greater angle, say 18°, for a shallower cut ②.



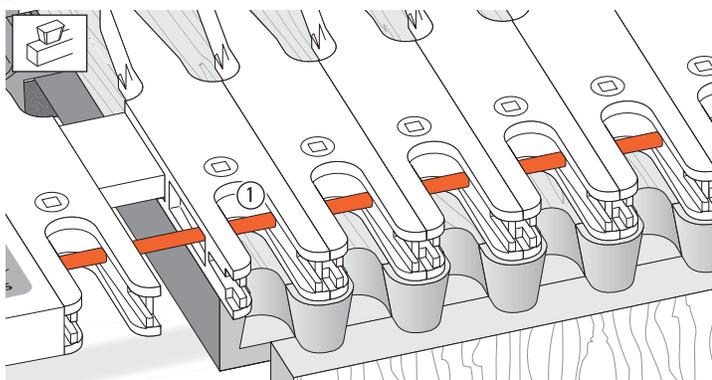
**10-4** Cumulative plus/minus tolerances in routers, bits and guidebushes, make it impossible to state exact bit depth for first-time precision fit. All dovetail jigs require trial and error tests to attain a fine fitting joint. The good news; we give a starting depth for each bit. Test and measure the successful 'Best fit' depth of cut ① or bit projection ② and record for future first-time fits.



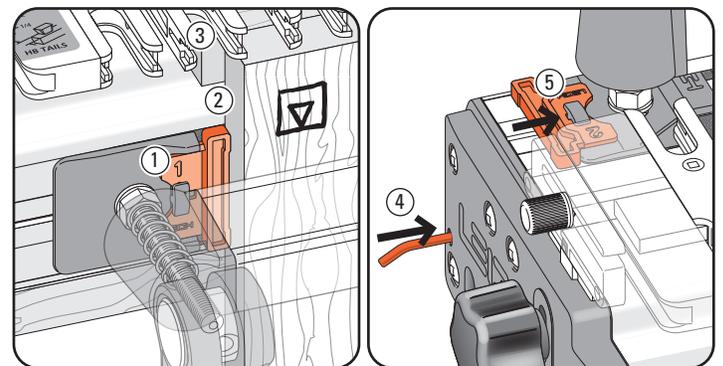
**10-5 Routing a Test Joint** You need a router, the e7-Bush set at No.10, the 80-8 1/2" [12,7mm] 8° dovetail bit, two 3/4" [19mm] thick pin boards and two 1/2" thick tail boards. The No.80-8 bit routs at a shallower ~1/2" [13mm] depth on single pass dovetails than on regular variably spaced joints. For this test, start with the No.80-8 bit projecting 1" [26mm] from the router base.



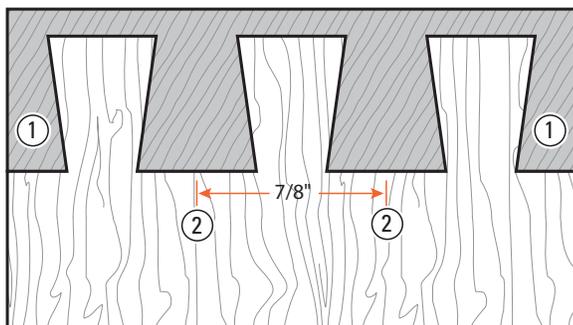
**10-6** This is a typical fixed template comb type jig. The comb depth ① is usually dimensioned to suit the most popular drawer side thickness of 1/2" [12,7mm].



**10-7** Superjig features two novel innovations. A Stop Rod inserted through the fingers ① limits router travel to allow the deep tail socket guides to function as a simple shallow fixed comb.



**10-8** The Spacer in the #1 position, slipped into the left-hand front side stop ① correctly offsets drawer sides ② from drawer fronts ③. The Spacer stays in place for the complete procedure. The Stop Rod stores here ④ and the Spacer here ⑤.

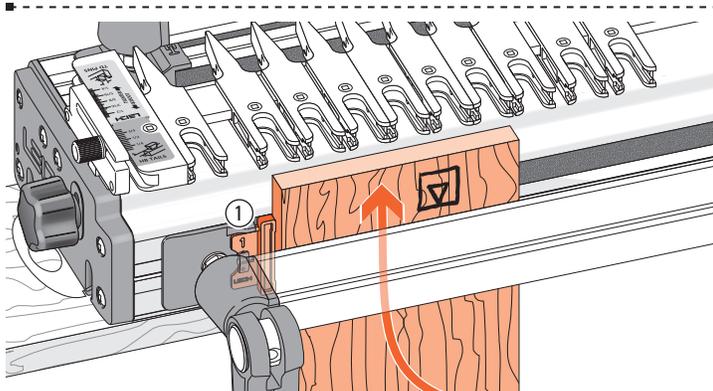


Board Width Chart		
Add up to 1/4" [6mm] or subtract up to 1/8" [3mm]		
7/8 [22]	6 1/8 [156]	11 3/8 [289] (SJ-18)
1 3/4 [44]	7 [178]	12 1/4 [311]
2 5/8 [67]	7 7/8 [200]	13 1/8 [333]
3 1/2 [89]	8 3/4 [222] (SJ-12)	14 [356] (SJ-24)
4 3/8 [111]	9 5/8 [244]	
5 1/4 [133]	10 1/2 [267]	

**10-9 Board Widths:** To achieve equally sized half pins ① at each side of a fixed space joint, use chart width plus up to 1/4" [6mm], or chart width minus up to 1/8" [3mm]. This chart covers boards up to maximum width for each jig. Pin centers ② will always be 7/8" for Single Pass Half-blind dovetail joints.

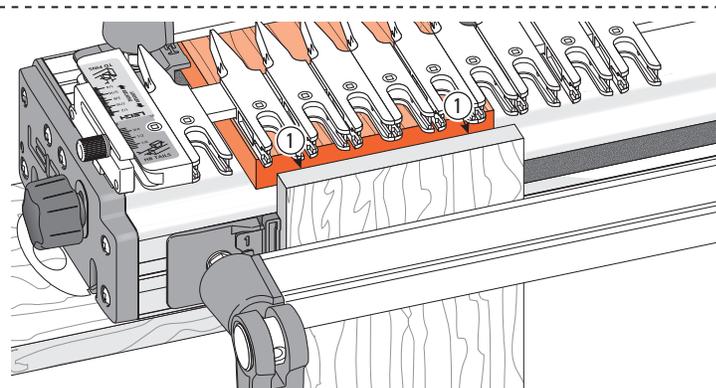
Example: the 7" [178mm] can be up to 7 1/4" [184mm] or as small as 6 7/8" [175mm].

*Note: This test joint is for 3/4" thick drawer front, 1/2" thick drawer side and #80-8 dovetail bit. Scale settings and depth of cut will vary depending on bit selection and tail board thickness.*



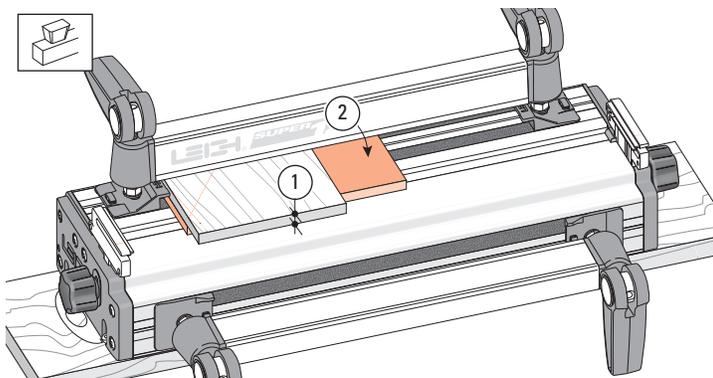
**10-10** Slip the Spacer onto the left hand front side stop ①, *note: No 1 to the top.* With the finger assembly raised in the HB Tails mode, clamp a drawer side in the front left side, against the Spacer and the top end edge slightly above the jig body top.

*Note: Drawer side thickness can be from 7/16" to 9/16" [6 to 14mm]. See 10-26 for Drawer Sides (Tail Boards) 5/8" and thicker.*

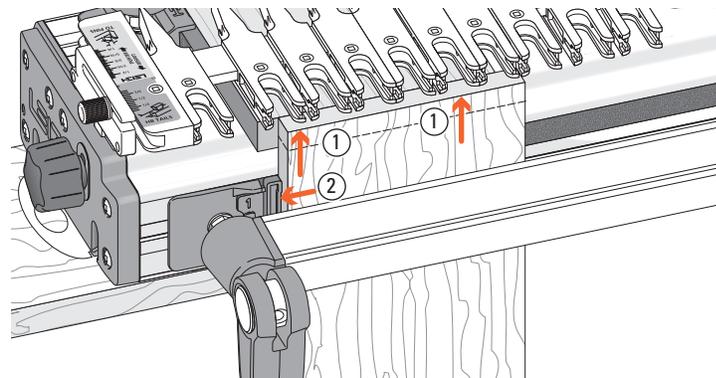


**10-11** Place the drawer front (from 1/2" to 1" thickness [16 to 25mm]) in the rear clamp. Clamp with the side edge against the left rear side stop, front end edge touching flush across the rear of the front board ①. Lower the finger assembly to the drawer front.

**! Board edges must be square.**

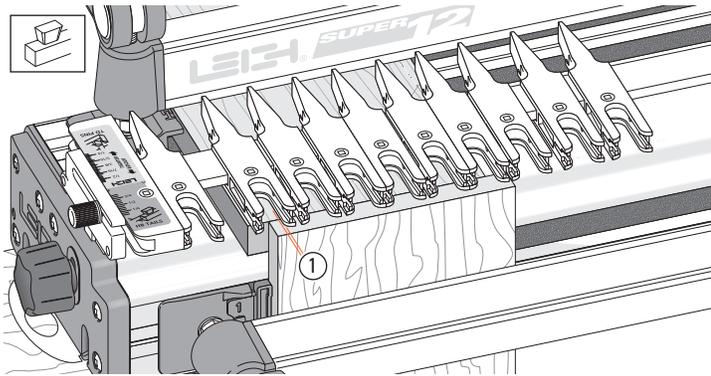


**10-12 If you're mounting Thin Pin Boards:** Minimum recommended pin board thickness is 1/2" [13mm]. Remember, No.128-8 bits rout at 3/8" [9,5mm] deep. If you rout a pin board less than minimum thickness ①, you need to pack the board up from the jig body. We suggest a piece of 1/4" to 3/8" [6 to 9mm] plywood for this purpose ②.

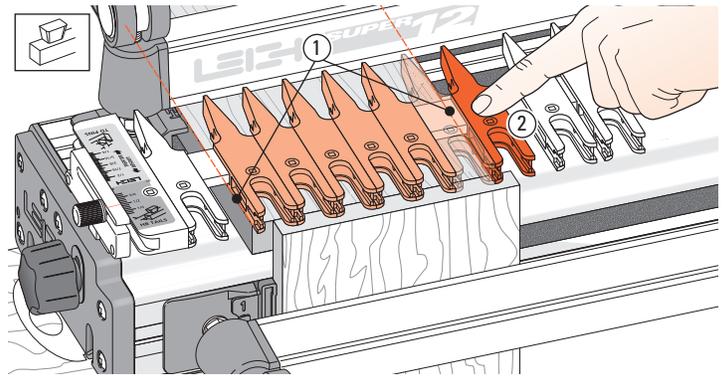


**10-13** Re-set the drawer side in the front clamp so that its top edge touches the guide fingers and is **perfectly flush** with the top face of the drawer front ① and the left edge is against the Spacer ②.

**! Board edges must be square.**

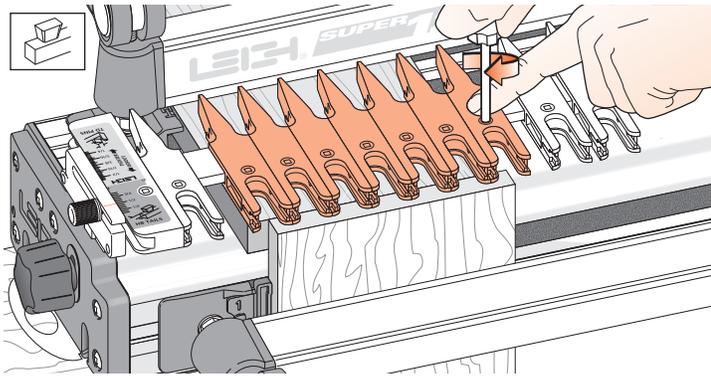


**10-14** With the scale set on  $\frac{1}{2}$ " [12,7mm], raise the finger assembly about  $\frac{1}{16}$ " [2mm] above the drawer front ①. The scale is always set on the  $\frac{1}{2}$ " mark when using the stop rod. See 10-26 for *Drawer Sides (Tail Boards) thicker than  $\frac{5}{8}$ "*.



**10-15** Slide across enough guide fingers to cover the **drawer front width**. Position fingers tight together and center the group of fingers on the board ①.

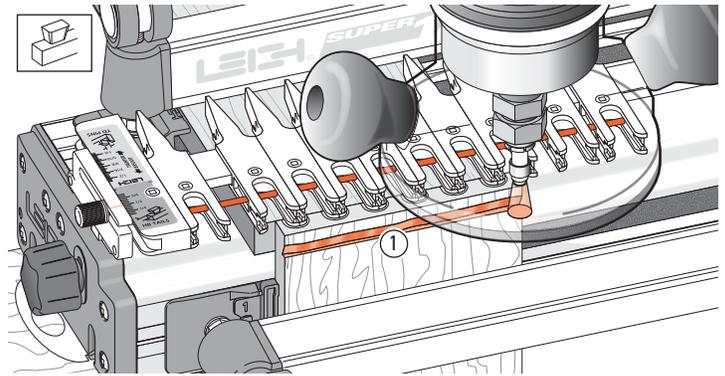
Depending on the exact board width, the outer fingers will either overhang, be inside, or flush with the board edges. Now add one more finger to the right of the group ② for routing the drawer side.



**10-16** Tighten the finger's screws. Move any spare fingers so that they will support the router and **tighten all loose fingers**. Lower the assembly flat onto the two work pieces.

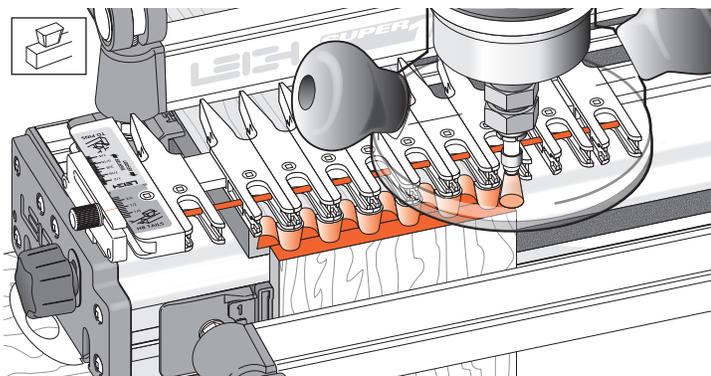


**REMEMBER SAFETY!**

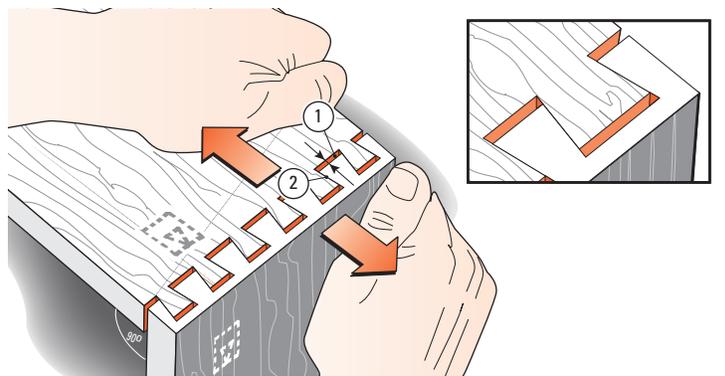


**10-17** Insert the Stop Rod through the fingers.

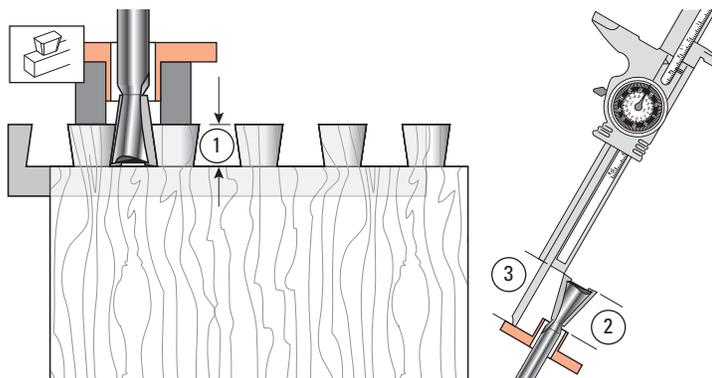
For the first light cut move the router from right to left. Make sure you control it firmly, because it is driven in this direction by the bit. Only the tip of the bit should be cutting on the first cut ①. This back, or climb routing, leaves a very clean shoulder when routing side grain.



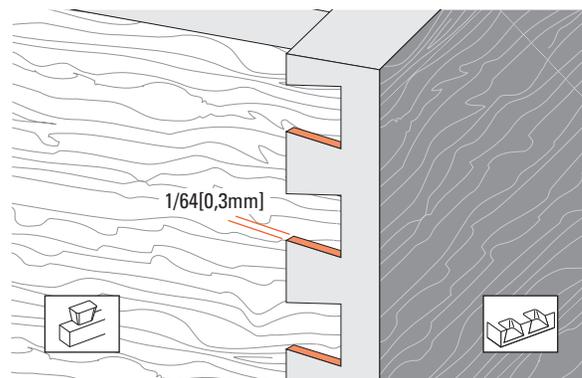
**10-18** Now rout in and out from left to right. Follow the guides into each finger opening to touch the stop rod. The pins, tails and sockets are formed simultaneously.



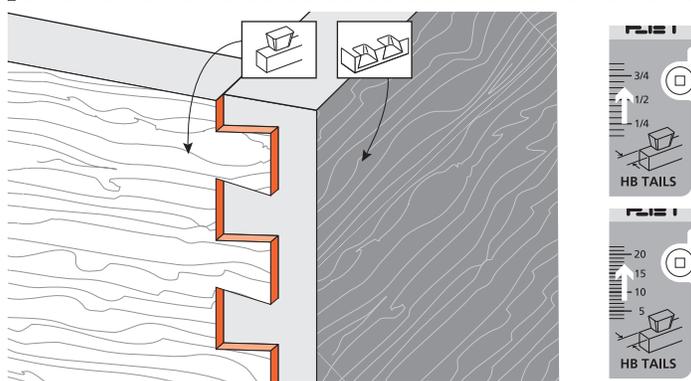
**10-19** Remove the boards and test the joint for fit. If the joint is **loose**, as shown here, **lower** the bit by the same amount as the gap at the bottom of the pins ① when the pins are pulled against the socket sides ②. If the joint is too **tight**, **raise** the bit slightly. Test again. You cannot rout the same board ends again with a dovetail bit, so use two fresh ends for each test.



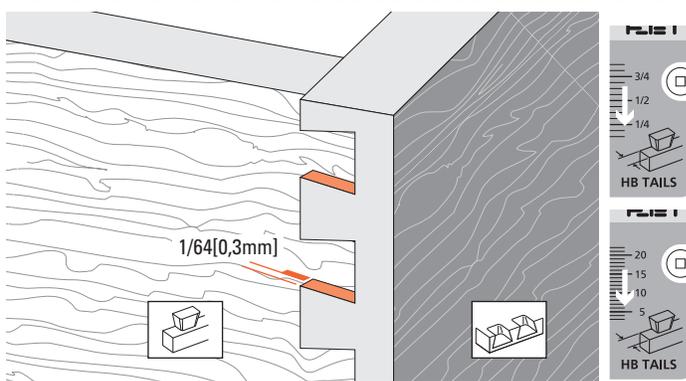
**10-20** Keep the test tail board that fits well, and mark it with the number of the bit you used to rout it. For quick set-up next time, clamp this tail board in the jig as a *depth-of-cut gauge* ① to show how far to lower the bit. Better yet, measure the bit projection from the end of the guidebush ② or guidebush flange ③ and record this for fast set-up in future.



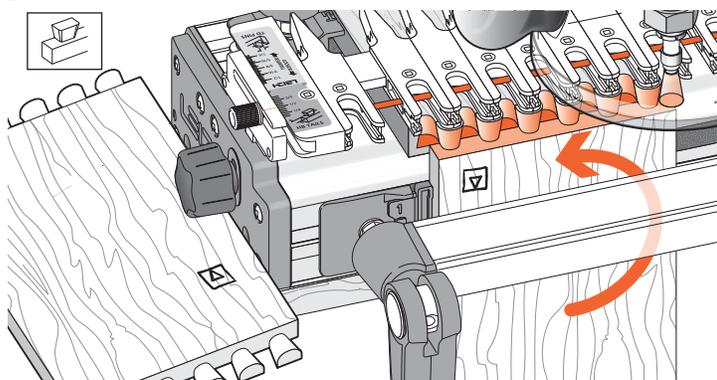
**10-21** When you have the proper tightness of fit, check the flushness. The tails should be under flush to the pins by *no more than 1/64" [0,3mm]* to allow for cleanup (exaggerated here). Any concentricity errors in the collet and guidebush on different routers will affect this tolerance.



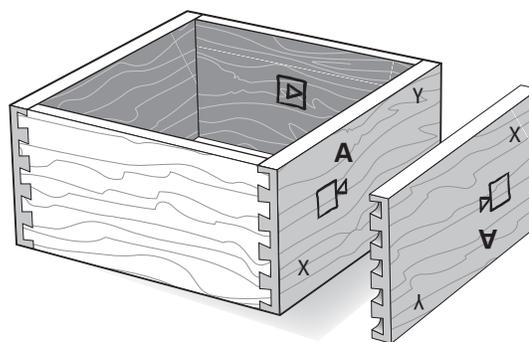
**10-22** If the tails stand out from the pins, set the HB TAILS scale away from the operator by half the amount required.



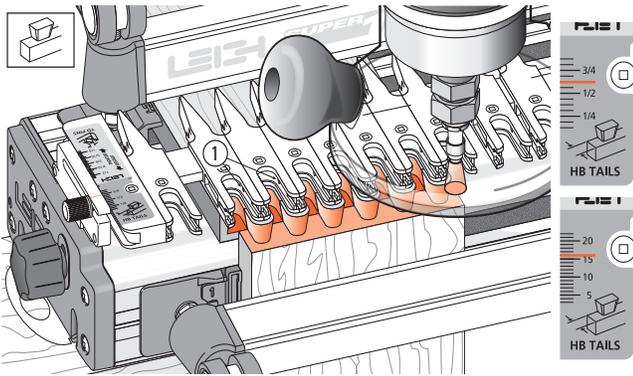
**10-23** If the tails fit in too far past the pins ends, set the HB TAILS scale toward the operator by half the amount required.



**10-24** To make a box, repeat the procedure four times, ensuring that the drawer fronts, rears and sides are all rotated correctly in the jig, keeping the inside face  of the boards away from the jig.



**10-25** Assemble the drawer. As with through dovetails, it doesn't matter which edge of any of the boards are at the top or bottom, the drawer will still fit together e.g. pin board "A" can be up either way.



### 10-26 Tail Boards $\frac{5}{8}$ "[16mm] and thicker.

Use the same procedure to rout "single pass" dovetails with side thicknesses from  $\frac{5}{8}$ " to 1"[16 to 25mm] **except:**

The stop rod is not used ① and the initial scale setting is  $\frac{5}{8}$ "[16mm] for all boards ②. *Hint: Set the e7-Bush to lower than 10 for deeper cuts in drawer fronts.* ■

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