

SUPERJIG - CHAPTER 14

Box Joints



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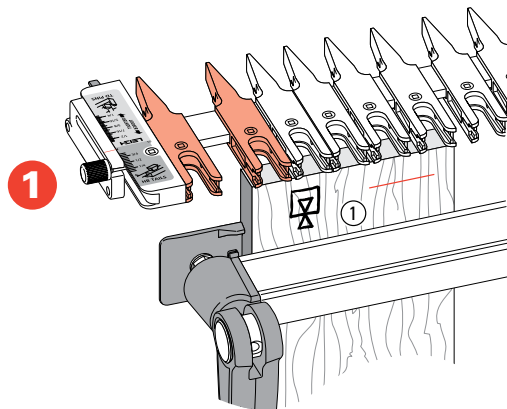
Actual Joint Sizes

The Superjig finger assembly was originally designed solely for dovetailing. Adapting the assembly for box jointing was a serendipitous combination of luck (existing guides approximately the correct dimension) and clever design; the e7-Bush and Spacer.

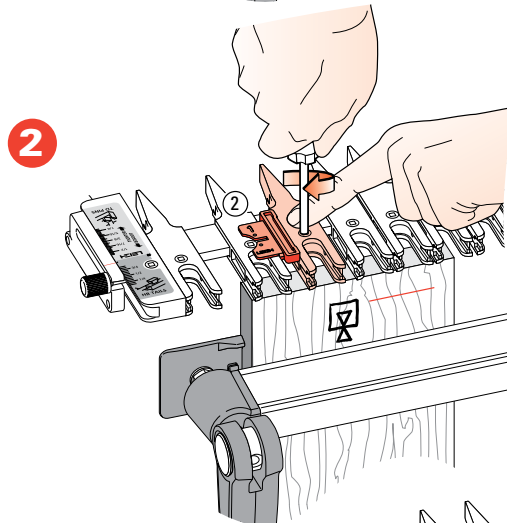
So the nominal $\frac{5}{16}$ " and $\frac{5}{8}$ " [8 and 16 mm] box joint sizes are actually $\frac{21}{64}$ " and $\frac{21}{32}$ " [8,30 and 16,66mm] respectively.

Concept of Operation

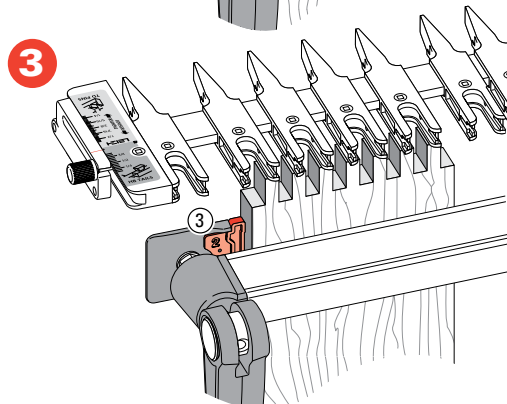
The first board is set against the side stop ①.



The Spacer is used to space the guide fingers ②.



The Spacer is also used on the side stop ③ to accurately offset mating work pieces for correct board to board joint alignment.



Choose your Board Width:

Choose a joint size from the chart below: 5/16" [8mm] or 5/8" [16mm].

For Symmetrical joint board widths: **Use the red column.**

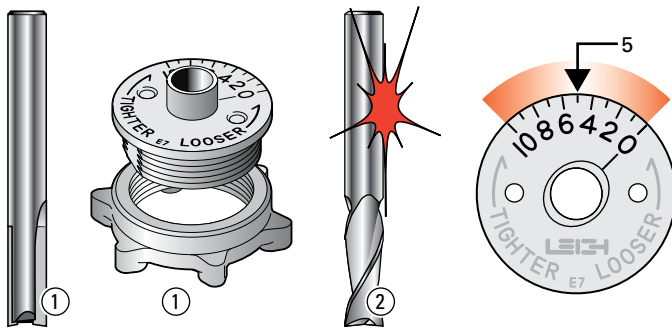
For Asymmetrical joint board widths: **Use the grey column.**

The number in the first column (white) for each joint size equals the total number of pins and sockets for the board width in the **red** or **grey** columns.

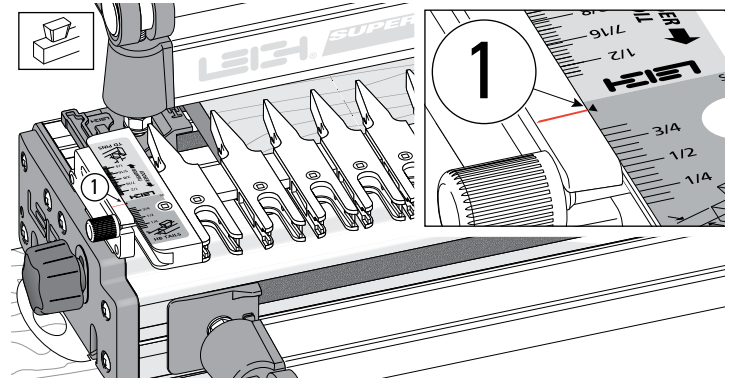
Board Thickness

Joints may be routed in any board thickness up to 1 3/16". Boards of different thicknesses may also be joined.

Board Width - INCHES				Board Width - MILLIMETERS			
5/16"		5/8"		8mm		16mm	
Pin/Socket width		Pin/Socket width		Pin/Socket width		Pin/Socket width	
Symmetrical	Asymmetrical	Symmetrical	Asymmetrical	Symmetrical	Asymmetrical	Symmetrical	Asymmetrical
1		1		1		1	
2		2		2		2	
3	29/32			3	23		
4		1 1/4		4		32	
5	1 9/16			5	40		
6		1 29/32		6		48	
7	2 7/32			7	56		
8		2 9/16	2 9/16	8		65	
9	2 7/8			9	73		
10		3 7/32		10		82	
11	3 17/32			11	90		
12		3 7/8	3 7/8	12		98	
13	4 3/16			13	106		
14		4 1/2		14		114	
15	4 27/32			15	123		
16		5 5/32	5 5/32	16		131	
17	5 1/2			17	140		
18		5 13/16		18		148	
19	6 5/32			19	156		
20		6 15/32	6 15/32	20		164	
21	6 13/16			21	173		
22		7 1/8		22		181	
23	7 15/32			23	190		
24		7 25/32	7 25/32	24		198	
25	8 1/8			25	206		
26		8 7/16		26		214	
27	8 25/32			27	223		
28		9 3/32	9 3/32	28		231	
29	9 13/32			29	239		
30		9 3/4		30		248	
31	10 1/16			31	256		
32		10 13/32	10 13/32	32		264	
33	10 23/32			33	272		
34		11 1/16		34		281	
35	11 3/8			35	289		
36		11 27/32	11 27/32	36		301	
37	12 5/32			37	309		
38		12 1/2		38		318	
39	12 13/16			39	325		
40		13 5/32	13 5/32	40		334	
41	13 15/32			41	342		
42		13 25/32	13 25/32	42		350	
43	14 1/8			43	359		
44		14 7/16		44		367	
45	14 25/32			45	375		
46		15 3/32	15 3/32	46		383	
47	15 7/16			47	392		
48		15 3/4	15 3/4	48		400	
49	16 3/32			49	409		
50		16 13/32	16 13/32	50		417	
51	16 3/4			51	425		
52		17 1/16	17 1/16	52		433	
53	17 13/32			53	442		
54		17 23/32	17 23/32	54		450	
55	18 1/16			55	459		
56		18 3/8	18 3/8	56		467	
57	18 11/16			57	475		
58		19 1/32	19 1/32	58		483	
59	19 11/32			59	491		
60		19 11/16	19 11/16	60		500	
61	20			61	508		
62		20 11/32	20 11/32	62		517	
63	20 21/32			63	525		
64		21	21	64		533	
65	21 5/16			65	541		

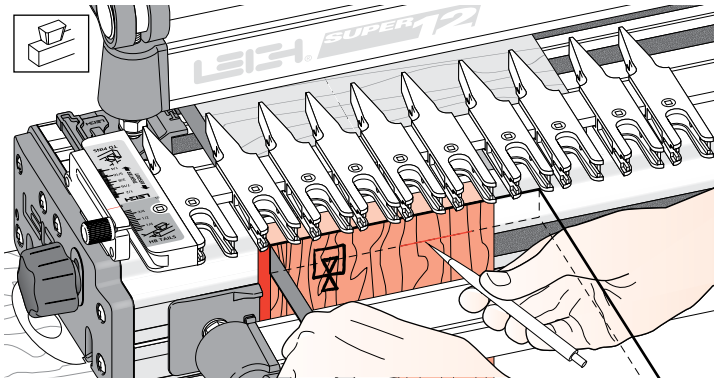



14-1 Bit and Guidebush selection Only the e7-Bush and $\frac{5}{16}$ " bit that came with SUPERJIG ① are required for all SUPERJIG box joints. Note: Spiral upcut router bits ② will cut cleaner than straight flute. Where metric size bits are available an 8mm straight or spiral bit may be substituted for the $\frac{5}{16}$ ". Always start test routing with the e7-Bush set on "5", the adjustment mid-range.

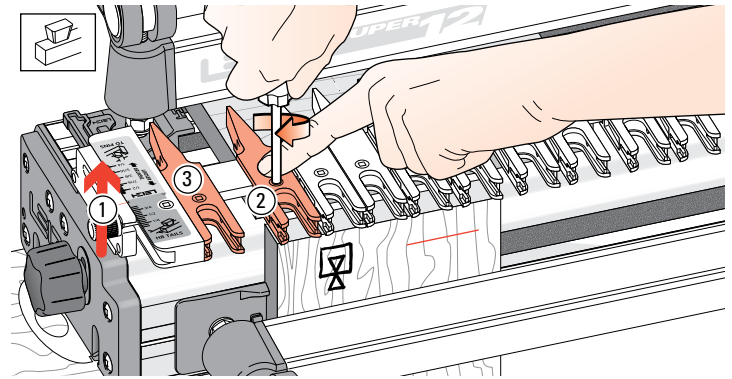


14-2 $\frac{5}{16}$ " [8mm] Box Joints.

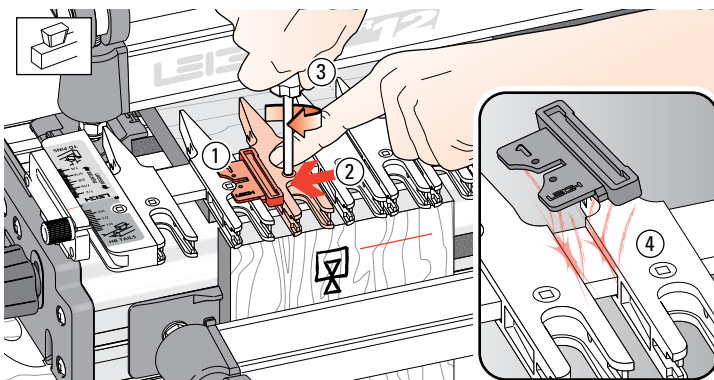
Place the finger assembly on the support brackets in the HB TAILS mode, set the scales on the **small triangular arrow** ① and lower the assembly onto the spacer board.



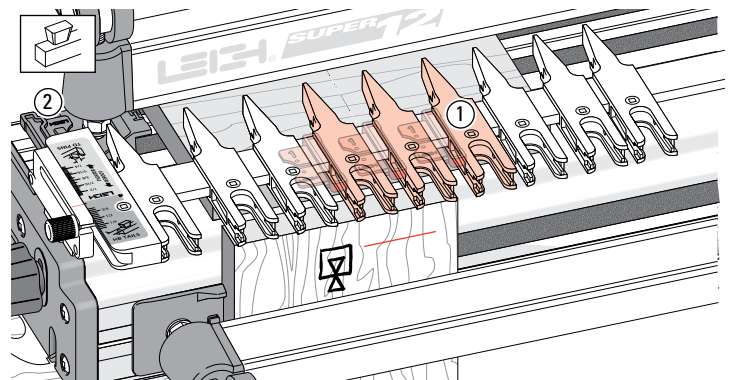
14-3 Clamp a test board in the front left clamp, against the side stop with the top edge flush under the guidefingers. The board may be clamped face side in or out . Mark and adjust the depth of cut to suit the thickness of the mating boards ①.



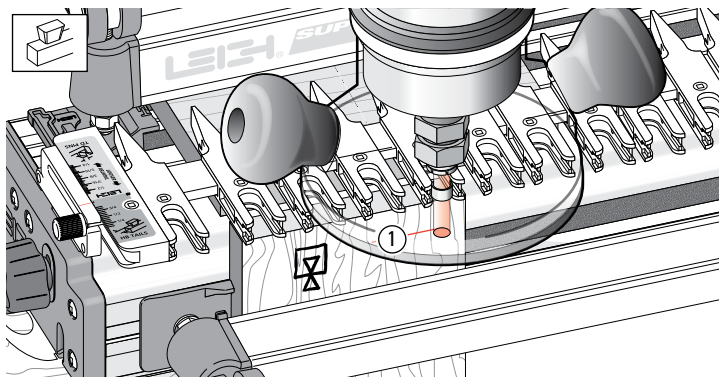
14-4 Raise the finger assembly about $\frac{1}{16}$ " [2mm] to allow ease of guide finger adjustment ①. Position the second guidefinger $\frac{1}{32}$ " [1,0mm] in from the board edge ② and tighten the finger. The first finger stays against the scale block as a router support ③. *Note: Square ended boards are essential to achieve flush joint alignment.*



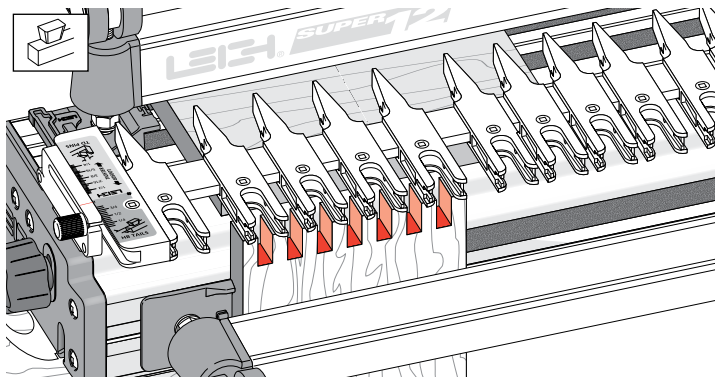
14-5 Place the Spacer on the finger bar to the right of the second finger, numeral 1 on top overlapping the locked finger ①. Move the next finger in to touch the Spacer ②. Hold the guidefinger firmly against the Spacer and tighten the second finger screw ③. As you remove the Spacer you should feel some friction; this indicates that the guidefinger is correctly spaced ④.



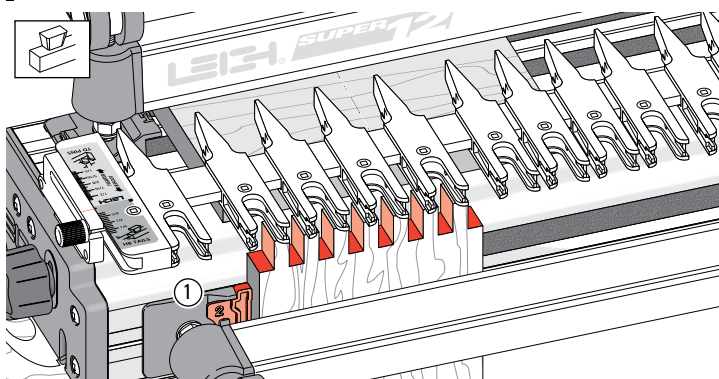
14-6 Repeat this procedure across the jig until there is at least one guidefinger spaced past the right side of the work piece ①. Tighten the unused guides. Store the Spacer on the outside of a rear side stop ②.



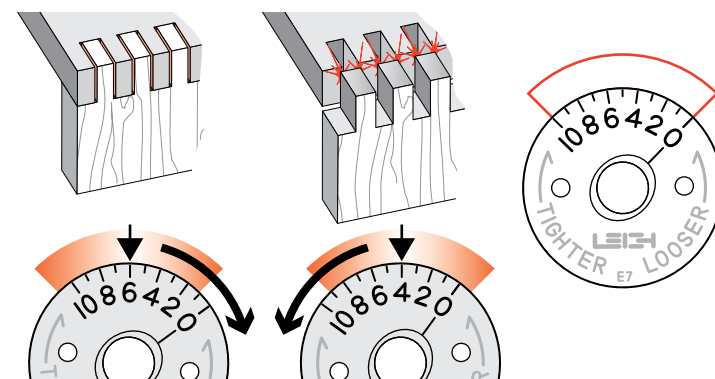
14-7 Lower the finger assembly onto the spacer board and double-check that the bit depth is down to the center of the pencil line ①. Make sure the collet does not rub on the guidebush.



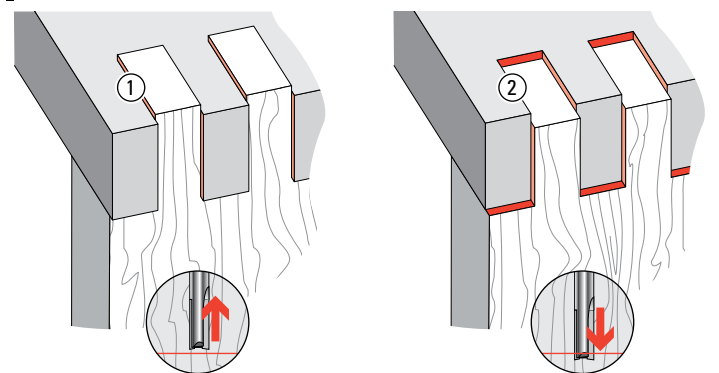
14-8 Rout one end of the scrap board. Rout into each finger opening and between each finger. Make sure to run the guidebush on both sides of each opening.



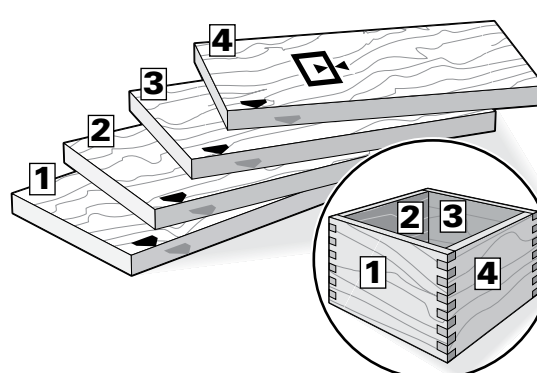
14-9 Remove the board and fit the SPACER to the front side stop with the **number 2** showing ①. Make sure it is fully home. Clamp the second test board with its side edge against the Spacer and its top edge touching the guidefingers. Rout this board.
Note: Square ended boards are essential to achieve flush joint alignment.



14-10 Test the two boards for fit and flushness. If the joint is loose, turn the e7-Bush to a higher number, say “6” and rout two more board ends. If the joint is too tight, turn the e7-Bush to a lower number, say “4”. Trial and error establish the best e7-Bush setting and record this in the space provided here, and/or on the pull-out. Next time this setting will get a good first-time result

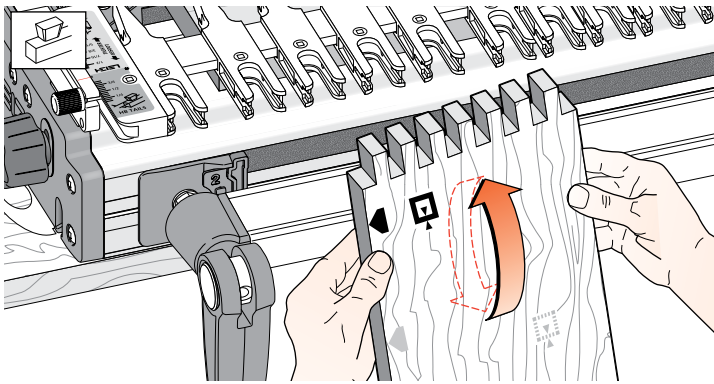


14-11 If the joint is over-flush ①, raise the bit slightly. If it is under-flush ②, lower the bit.

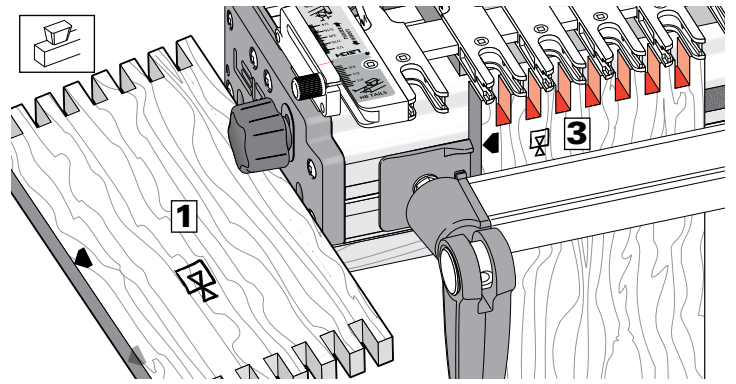


14-12 Let's make a box.

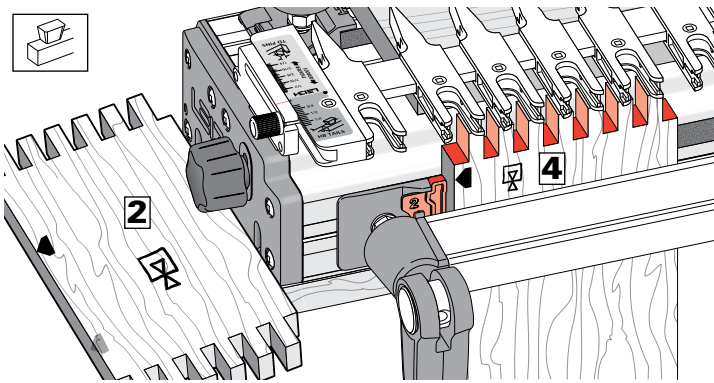
Prepare four boards and number them **1** to **4**. Then select the grain alignment and mark the common top (or bottom) edge. Don't worry about face side selection; this can be done after routing.



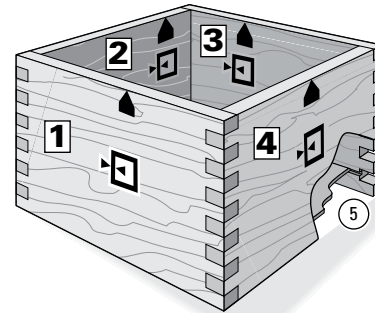
14-13 All box joint boards are clamped alternating face side in and face side out [icon] always with the same side edge against the side stop (or Spacer).



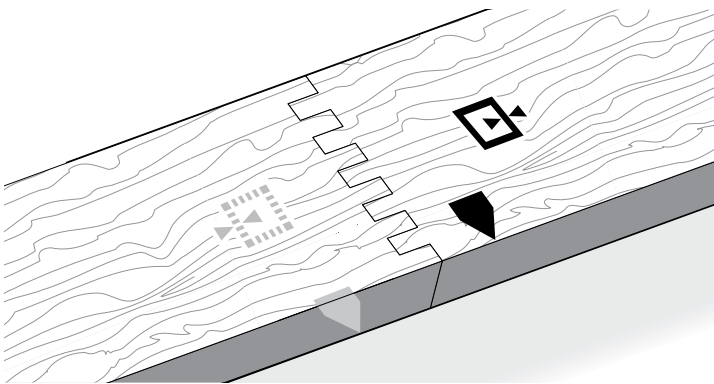
14-14 Rout both ends of boards **1** and **3** with their edges against the side stop. Be sure to keep the same edge to the stop.



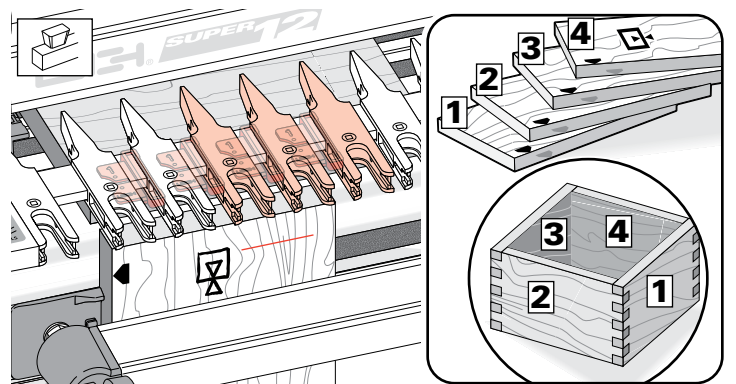
14-15 Rout both ends of boards **2** and **4** with their edges against the Spacer and the Spacer in the No.2 position. Keep the same edges to the Spacer.



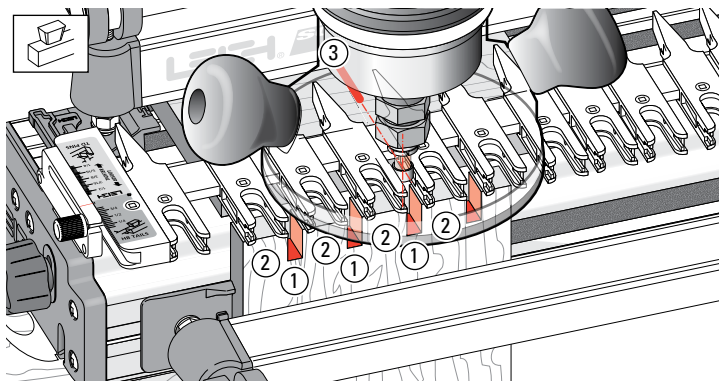
14-16 Keeping the marked side stop edges of all boards toward the top (or all to the bottom) of the box, select the preferred outside faces before routing the grooves ⑤ for the bottom.



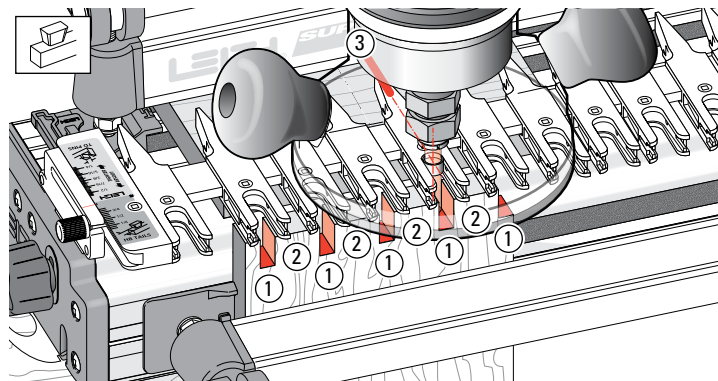
14-17 The same method will produce end-on-end joints.



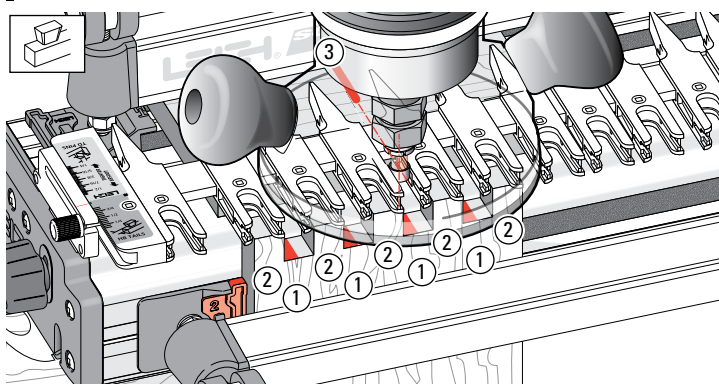
14-18 5/8" [16mm] Box Joints Set up and space the guide fingers exactly as for 5/16" [8mm] joints. Start with the same e7-Bush setting. See 14-4 thru 14-10. Prepare four boards using the board width chart for 5/8" [16mm] joints and number them **1** to **4** around the box ① with the common edges marked.



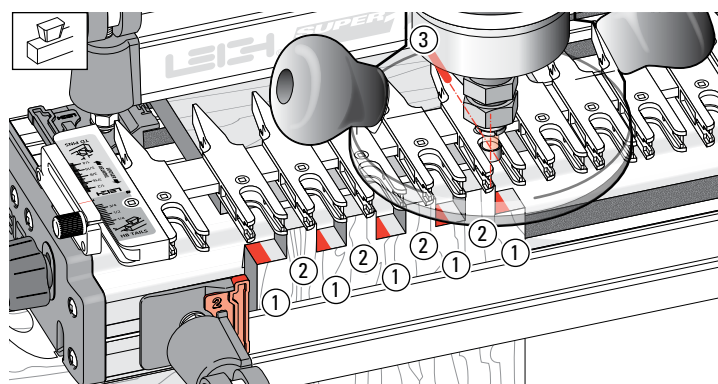
14-19 Rout both ends of boards 1 and 3 but **only rout between the guide finger sides ① not between the finger openings ②**. Keep the common edge against the side stop
Hint: Mark the router base at the 12 o'clock position ③ and steer this mark between the **pointed ends of the fingers** at the rear of the assembly.



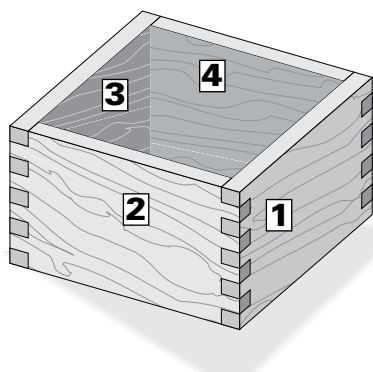
14-20 Now rout both ends of boards 2 and 4, with the common edge against the side stop but **only rout between the finger openings ① not between the finger sides ②**.
Hint: Now steer the base 12 o'clock mark **along the finger points ③**.



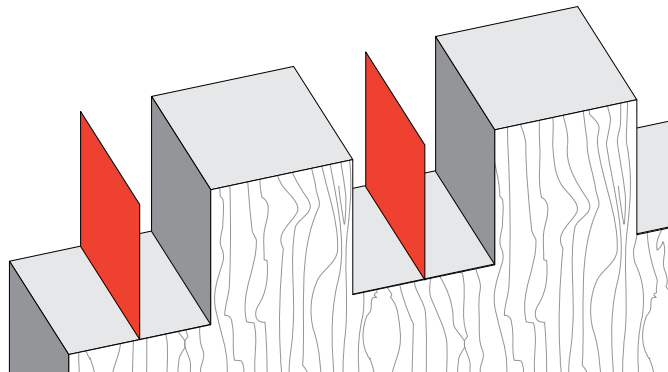
14-21 Fit the Spacer to the side stop with number 2 showing. Now rout both ends of boards 1 and 3 again, with the common edge against the Spacer and **again ... only rout between the guide finger sides ①, not between the finger openings ②**, steering the router mark between the finger points ③.



14-22 With the Spacer still in position rout both ends of boards 2 and 4, with the common edge against the Spacer and **again, only rout between the finger openings ①**, steering the router mark along the finger points ③.



14-23 Joint fit Check for joint fit as usual, and repeat testing if required.



14-24 Theoretically, there will be nothing in the $\frac{5}{8}$ " [16mm] sockets, literally a zero thickness wall, where the bit has passed by twice. However, routing tolerances can leave a very thin "wall" uncleared by routing. This can be quickly removed with a chisel or sandpaper. ■