

## SUPER FMT CHAPTER 7

## Special Joints

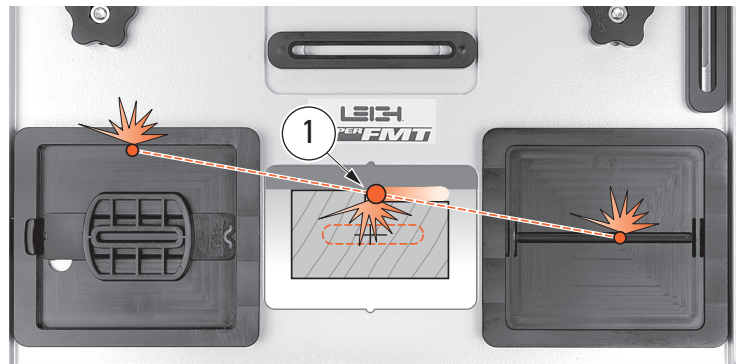
*Angled Joints  
Through Tenons  
Bridle Joints  
Asymmetric Tenons  
Haunched Joints  
Doweling*

*Before using your Leigh Super FMT you must have completed all of the preparatory steps including reading the router safety recommendations on the previous pages. If you haven't done so, it is essential that you do it now.*

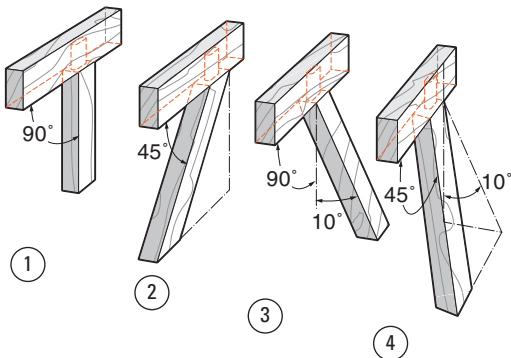
### ⚠ IMPORTANT SAFETY NOTE

Take great care to not “trap” the bit against the side of tenon rails ①. Do not attempt to rout center tenons in rails thicker than  $1\frac{5}{16}$ " [34mm] before referring to 5-39 through 5-44.

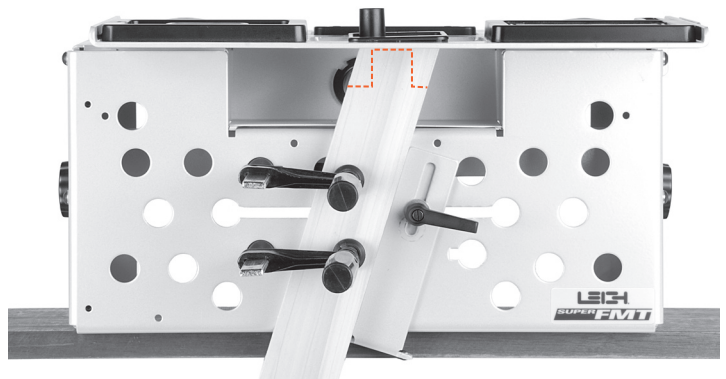
Without using the table movement as prescribed, the bit would have to be plunged into the side of the tenon rail causing the bit to powerfully “drive” the router across the jig. **This could be dangerous and can damage the jig.**



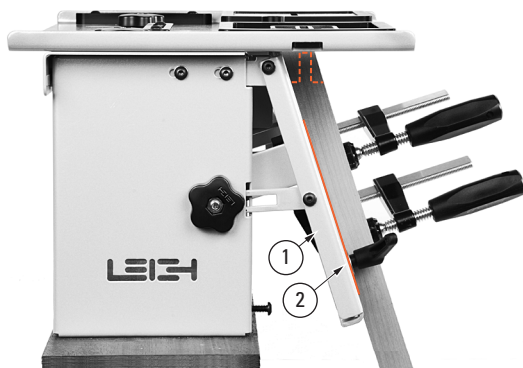
### Angled Joints



**7-1** The majority of frame joints are at 90° ① but the ability to angle joints is essential in chair construction, for example. Whether these joints are single angles ② and ③ or a compound angle ④ they are easily achieved on the Super FMT.



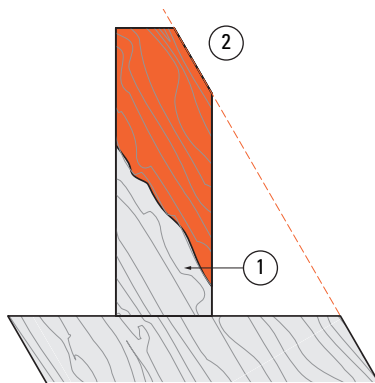
**7-2** Angling the sidestop fence gives a single angled joint in the left-right direction.



**7-3** Angling the clamp plate ① with the sidestop in a vertical position ② gives a single angled joint in the front-back direction.



**7-4** Angling both the sidestop fence and clamp plate gives a double or compound angled joint.

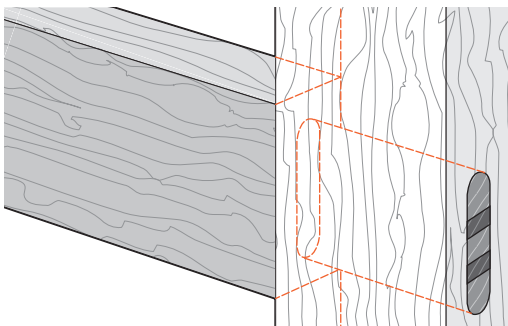


**7-5** The Super FMT clamp plate can be angled up to 30° but it is doubtful you will ever need to approach even 10° on a mortise & tenon joint. The strength of a tenon across its grain lessens considerably as the angle increases ①. In addition, the length and position of the tenon is limited in slope by the angled workpiece relative to the vertical bit ② (angle shown in illustration is exaggerated).

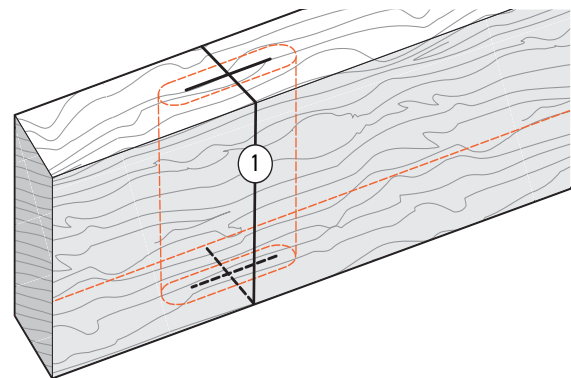


**7-6** However, you may for example, want to machine spline mortises or dowel holes in a stave type construction in, say, octagons at 22½°, or hexagons at 30°, so the 30° capacity may prove to be useful. You can then machine precisely fitting splines on the Super FMT and trim them to length. ■

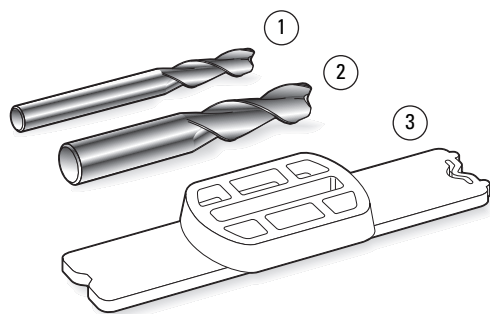
### Through Tenons



**7-7 Through Tenons** Occasionally, a design feature will call for through, exposed tenons, possibly “wedged” for decorative effect. The limited depth of cut of router bits can make this difficult, but the two-sized bit technique described previously, combined with the precision of the Super FMT, makes this procedure perfectly feasible in many instances.



**7-8** The problem with through mortises is their great depth relative to the cutting depth and diameter of the bit. However, if the left-right part of the joint center mark ① is carefully squared around the mortise workpiece, it is possible to accurately plunge from **both sides**.



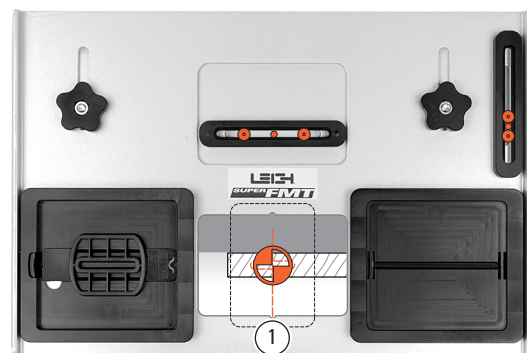
**7-9** Here's an example:

$\frac{1}{4}$ " [6mm] joint through  $1\frac{1}{2}$ " [35mm] deep mortise.

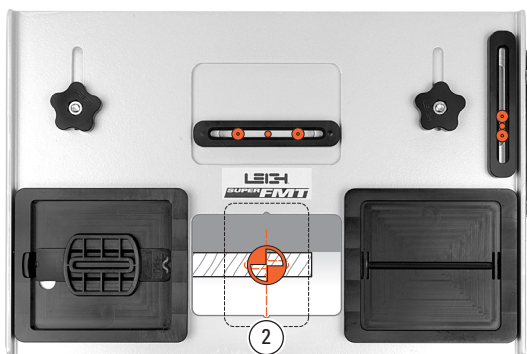
Select  $\frac{1}{4}$ " [6mm] bit for mortises ①.

Select  $\frac{1}{2}$ " [12mm] bit to rout the  $1\frac{1}{2}$ " [35mm] long tenon ②.

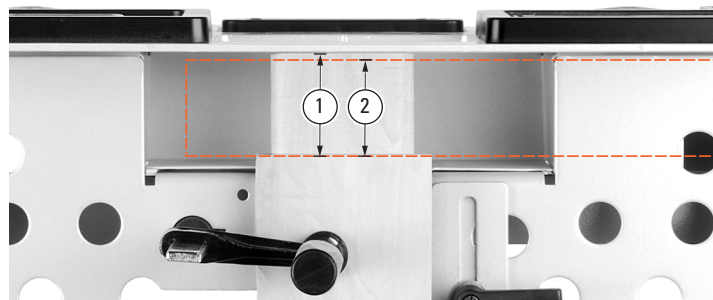
Select  $\frac{3}{8}$ " [8mm] guide ③ for length from the guide/bit selection chart in Appendix I.



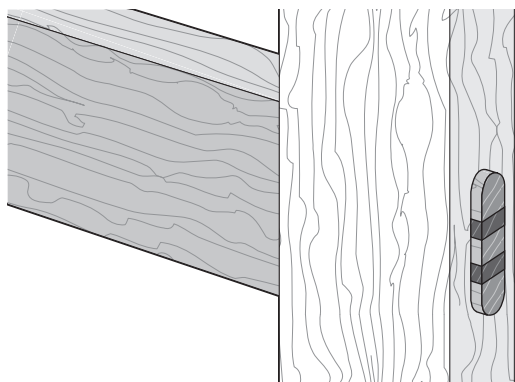
**7-10** Carefully sight the mortise taking particular care to center the "vertical" line ① in the sight. Plunge and rout down deeper than half the mortise board depth but no more than the cutting length of the bit.



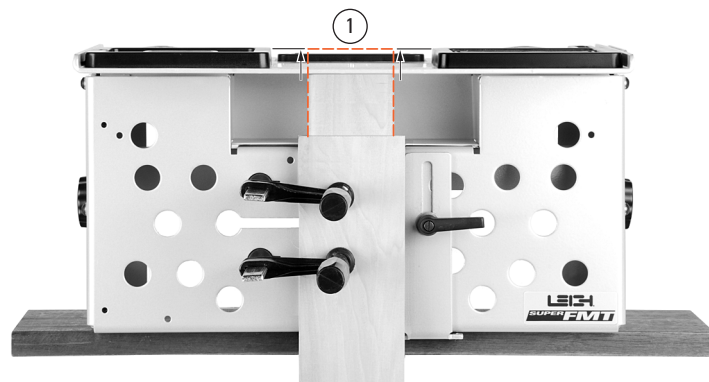
**7-11** Turn the mortise piece end for end and, **keeping the same reference side of the mortise board to the clamp face**, carefully sight the "vertical" mortise center mark ② and lock the table. Plunge and rout to clear the through mortise.



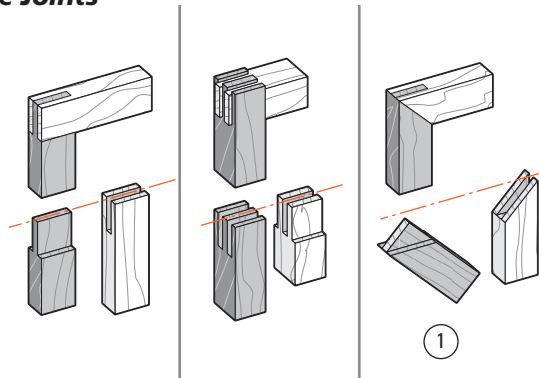
**7-12** Rout the tenons with the larger (longer) bit for slightly more tenon depth ① than mortise depth ②.



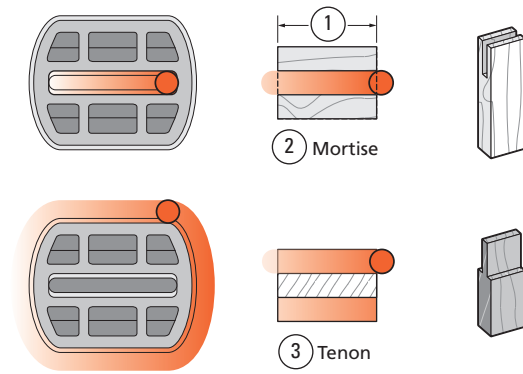
**7-13** It may even be possible to make tenons long enough to be raised if this decorative effect is desired. "Wedging" the tenons is a simple hand procedure and adds a nice decorative touch. By design, mortise length is slightly greater than tenon width. Wedging expands the tenon to eliminate the gap.



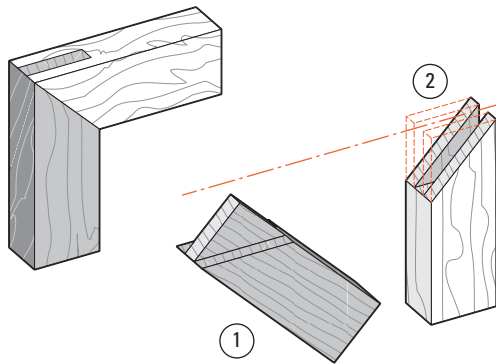
**7-14** If the tenon stock is smaller than the table opening it may be possible (after sighting) to slide the tenon workpiece up to gain an extra  $\frac{1}{2}$ " [12mm] ① (exaggerated for clarity) of tenon length (assuming of course that the bit has sufficient routing depth) but no higher than the top of the guide moldings ①. ■

**Bridle Joints**

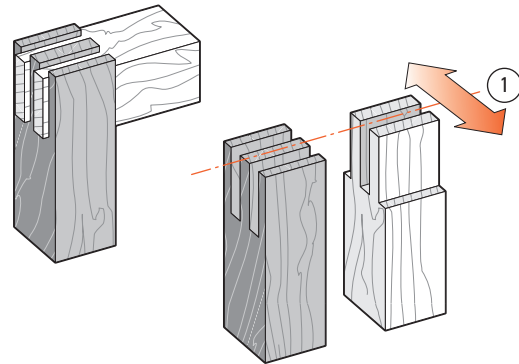
**7-15** Routing bridle joints on the Super FMT is simple. All the workpieces (with the exception of the mitered tenon) ① are mounted vertically on the jig. Fit for bridle joints is adjusted with the left guide pin.



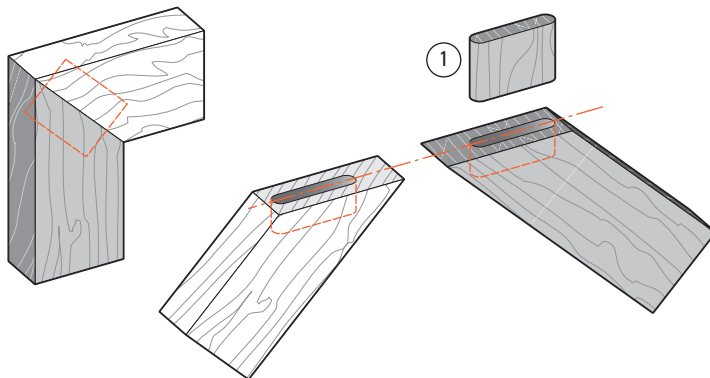
**7-16** Select a guide that is greater in length than the workpiece width ① by at least two bit diameters. Rout right through the “vertical mortise” ② and across the tenon sides ③. The bit will clear the edge of the workpiece before the guide pin reaches the rounded part of the guide. Adjustment for fit is made with the left hand guide pin.



**7-17** The mitered “tenon” is mounted at 45° on the clamp plate ①. The “mortise” end miter ② is cut on the table saw after routing the mortise.

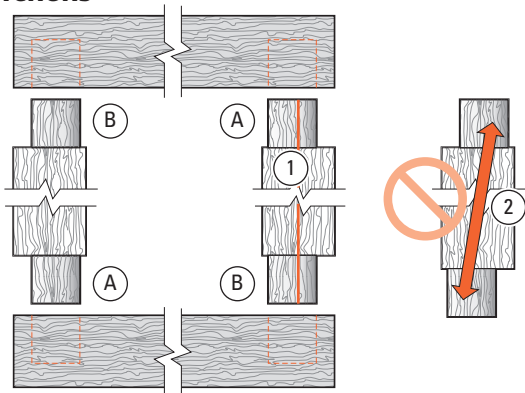


**7-18** Twin bridle joints use the technique shown above combined with the table movement ①. See Twin Joints, 5-12.

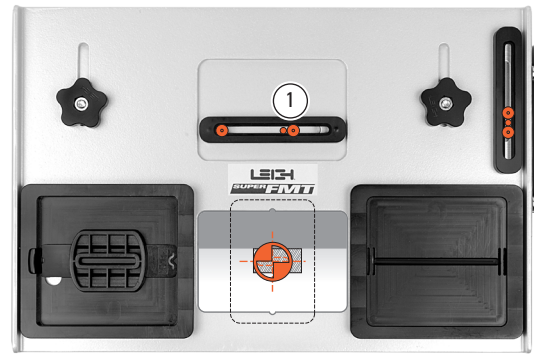


**7-19 Floating Tenons** A “floating” tenon in a mitered corner allows for a greater joint glue area at the inside of the corner. On this mitered corner, the workpieces are mounted in the jig at 45° and the mortises routed. The floating tenon ① is routed on the end of a vertically mounted scrap piece using the same guide and then sawn off. ■

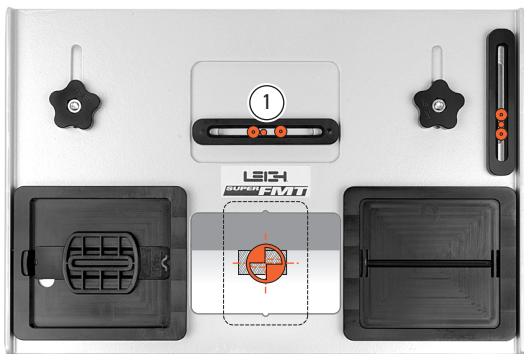
**Asymmetric Tenons**



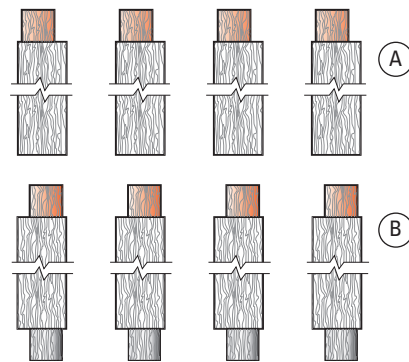
**7-20 Asymmetric Tenons** Not all tenons are centered on the long axis of the workpiece end ①. This means that tenons “A” are routed at one table sighting and tenons “B” at a second table sighting. If they aren’t routed in this manner, the two tenons will be diagonally opposed to each other ②.



**7-21** Use the **LR** limit stops for rapid changeover from tenons “A” to tenons “B”. For example, with the workpiece centered on the jig, sight tenon “A” and set the right hand limit stop to the right of the post ①, then...

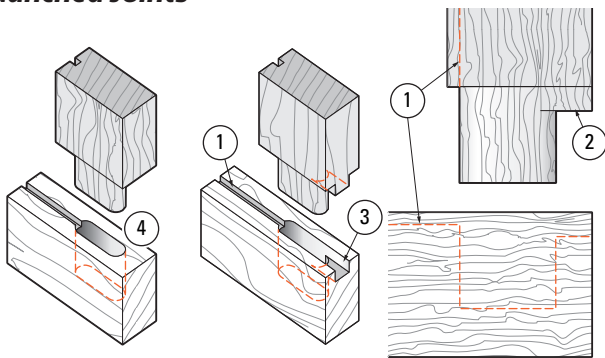


**7-22** ...sight tenon “B” and set the left hand limit stop to the left of the post ①. Now alternately rout tenons “A” and “B”, moving the table left and right each time, or...

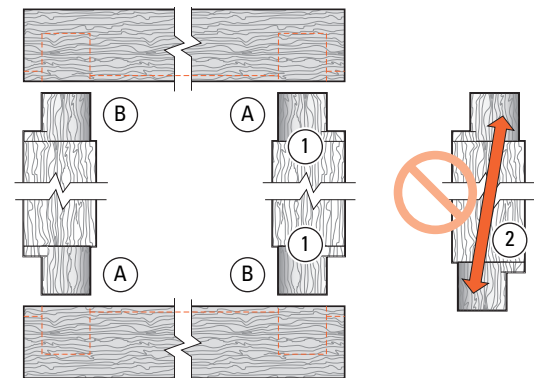


**7-23** ...if you don’t trust yourself to get the sequence correct, you could rout all the “A” tenons first, then change the table one time to rout all the “B” tenons. This latter procedure would be the simplest way to rout haunched tenons (covered in the next section). ■

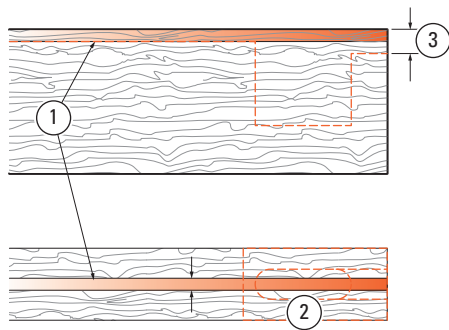
**Haunched Joints**



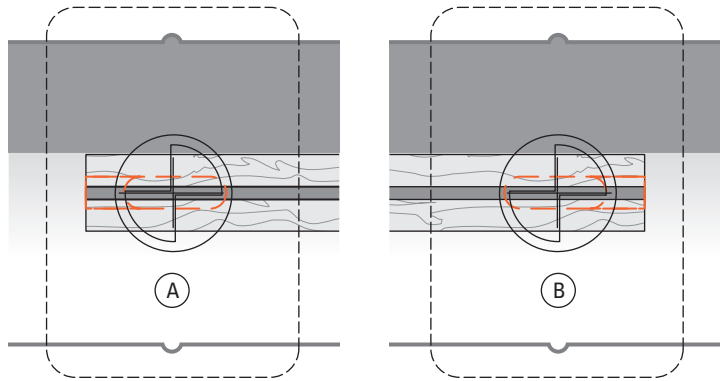
**7-24** Frame and panel door construction can call for rails and stiles to be grooved for the panel ①, and the tenons haunched ②, both for joint stability and to fill the end of the stile groove which is sometimes run right through ③. This is not as common as it once was. Routers and router tables now make it simple to have a stopped groove ④, avoiding the need for the haunch.



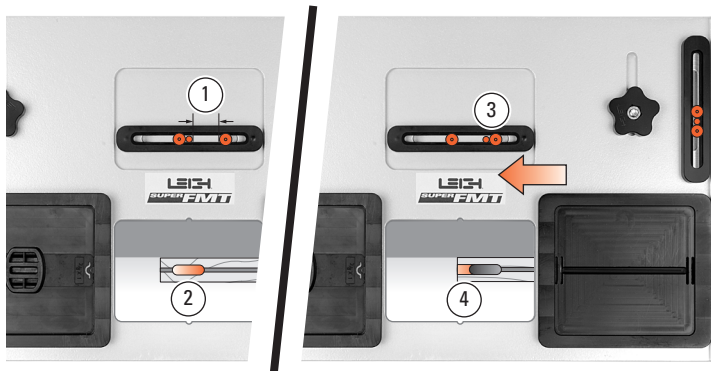
**7-25** Haunched mortises and tenons are “handed”, and require separate setups for each. e.g. if these two tenons ① were routed with the same jig setup, the result would be offset tenons ②. So mark out the two types of corners as “A” and “B” mortises and tenons.



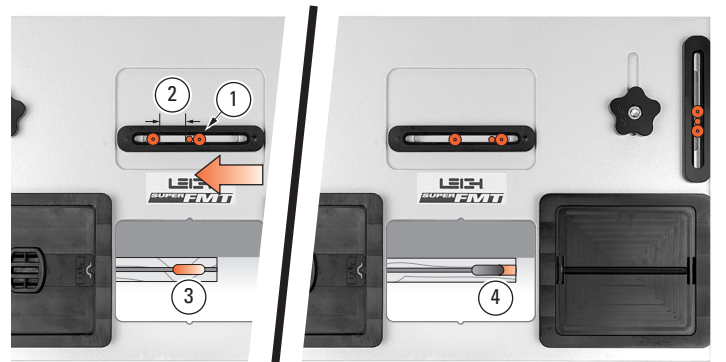
**7-26** First, groove all the workpieces ①. The groove should be less than the mortise width ② and shallower than the haunch recess ③.



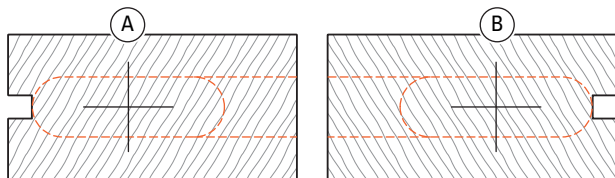
**7-27** Sight both the “A” and “B” mortises. Set stops or mark the outtrigger for repeatable successive workpieces. Position and lock the  $\text{LR}$  Limit Stops against the post.



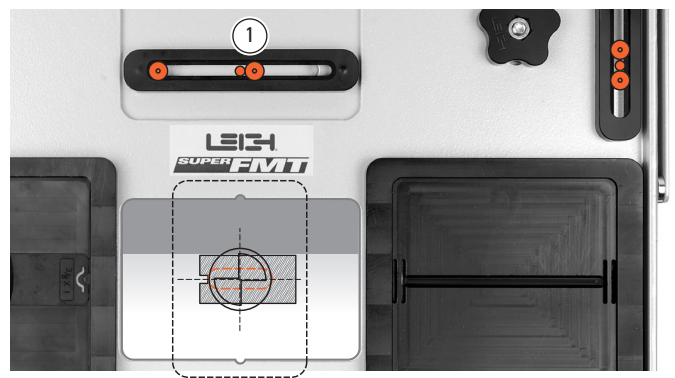
**7-28 “A” Mortises and Haunch Recesses** Set right hand  $\text{LR}$  Limit Stop away from the post,  $\frac{3}{4}$  of the guide length ①. e.g. 1” guide, move  $\frac{3}{4}$ ”. Table still in “mortise center” position, rout mortise full depth ②. Raise the plunge. Move table left to the stop ③. Lower the bit to haunch depth; set router depth turret. The router is now set for both depths of cut. Rout haunch recess ④. Repeat for all “A” mortises.



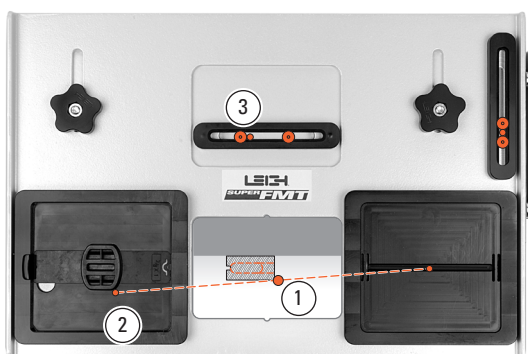
**7-29 “B” Mortises and Haunch Recesses** Move the table left to touch the right hand  $\text{LR}$  Limit Stop against the post ① and lock the table. Move the left hand  $\text{LR}$  Limit Stop (by  $\frac{3}{4}$  of the guide length) to the left ②. Rout the “B” mortises ③ and haunch recesses ④ using the table movement and the same router depth settings.



**7-30 Routing the Tenons** Mark the tenon centers “A” and “B”. Remember, the tenons are “off center” and each end of the tenon pieces are marked off center in opposite directions. **Prepare and make a couple of extra (scrap) tenon pieces to use in setting haunch bit depth later (see 7-35).**



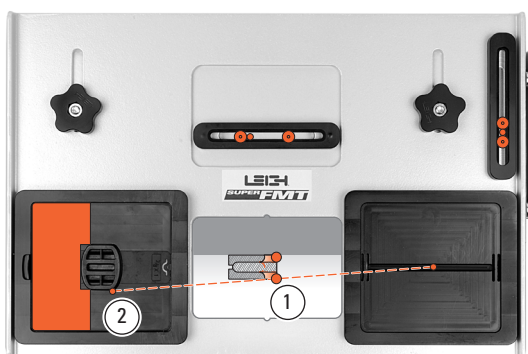
**7-31 “A” Tenons** With the workpiece centered on the jig, sight the tenon center and set the right hand  $\text{LR}$  limit stop to the post ①.



**7-32** Move the table right to a position where the bit will clear the end of the haunch ① while the guide pin is still on the straight part of the guide ②. Set the left hand LR limit stop to its post ③.



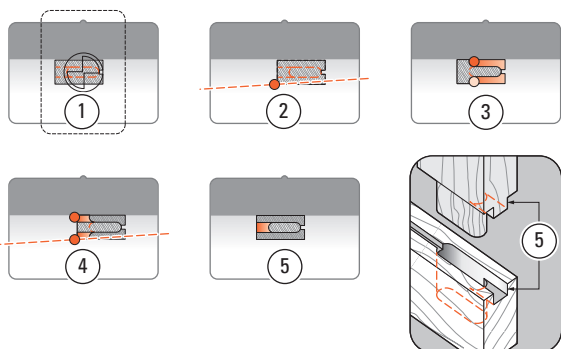
**7-33** Move the table to the left again and if necessary, set a “guard” piece in the guide recess ① to prevent routing around the right end of the tenon ②. Rout the left end of the tenon (shaded area) at full shoulder depth.



**7-34** Move the guard to the left end of the recess. Move the table right and rout the rest of the “A” tenon at full depth; the bit prevented from rounding the haunch off at ① by the guide pin against the guide side at ②.



**7-35** Move the table left, remove the guard from the bit recess. **Depth:** You will have to preset the plunge router depth-of-cut rod and turret so that the routed haunch exactly equals the depth of the haunch recess ①. Use the scrap test tenons to achieve this setting by measurement and a little trial and error. Now rout completely around the actual tenon.



**7-36** “B” Tenons on the other end are routed with the procedure reversed. ■

## Doweling



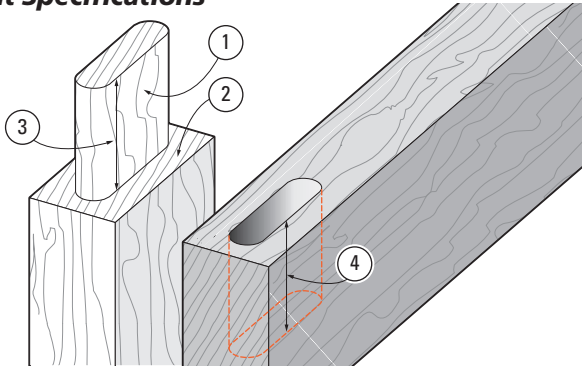
**7-37** Sometimes where the strength of a mortise and tenon is not required, doweling may be a suitable alternative. A bonus use of the Super FMT is its ability to provide very precise dowel hole boring. Turn the left hand guide pin down to “zero free play” in the mortise guide slot. Simply use one or both ends of a mortise guide slot for positioning while plunging the dowel holes. ■

# Joint Specifications, Guide and Bit Selection

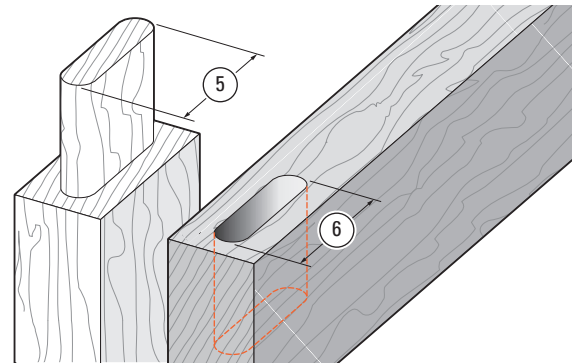
## Foreword

The illustrations and specifications in this Appendix show the largest tenon rail and tenon sizes possible on the Super FMT, either in one table position or multiple table positions as noted. For all smaller sizes, refer to the guide and bit selection chart.

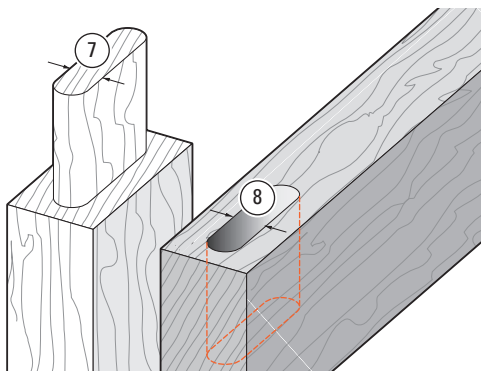
## Joint Specifications



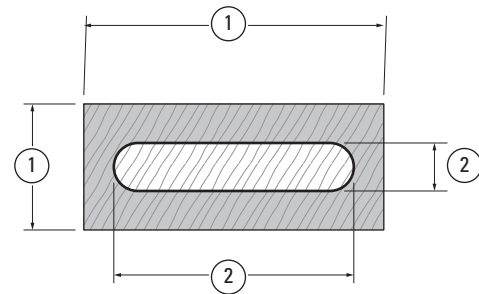
**A1-1 Joint Terminology** The tenon sides are the “Cheeks” ①. The tenon shoulders are called (luckily) the “Shoulders” ②. Unfortunately, references to dimensions of mortises and tenons do not share matching terminology, so... Long or short tenons ③ fit into deep or shallow mortises ④.  
**Tenon Length = Mortise Depth.**



**A1-2** Wide or narrow tenons ⑤ fit into long or short mortises ⑥.  
**Tenon Width = Mortise Length.**



**A1-3** Thick or thin tenons ⑦ fit into wide or narrow mortises ⑧.  
**Tenon Thickness = Mortise Width.**



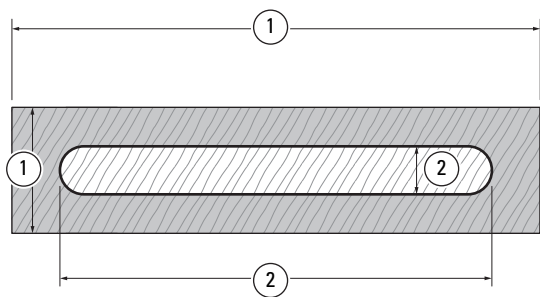
## A1-4 Largest Single Rail and Tenon (using one table position with 1/4" bit)

Workpiece 1 5/16" x 3 1/8" [34 x 80mm] ①.

Tenon 1/2" x 2 1/2" [12 x 65mm] ②.

Guide 1/2" x 2 1/2" [12 x 65mm].

*Note: Routing single tenons in stock thicker than 1 5/16" [34mm] would require the bit to be plunged into the edge of the workpiece, dangerously “trapping” the bit. See 5-39 through 5-44 and follow the “Third Tenon” procedure.*



### A1-5 Largest Single Rail and Tenon

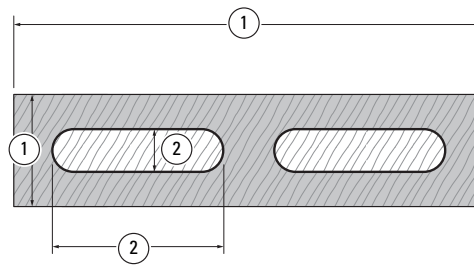
(using two table positions)

Workpiece  $1\frac{5}{16}$ " x  $5\frac{1}{2}$ " [34 x 140mm] ①.

Tenon  $\frac{1}{2}$ " x  $4\frac{1}{2}$ " [12 x 115mm] ②.

Guide  $\frac{1}{2}$ " x  $2\frac{1}{2}$ " [12 x 65mm].

*Note: Using 3 table positions tenon length ② may be up to 5" [125mm]*



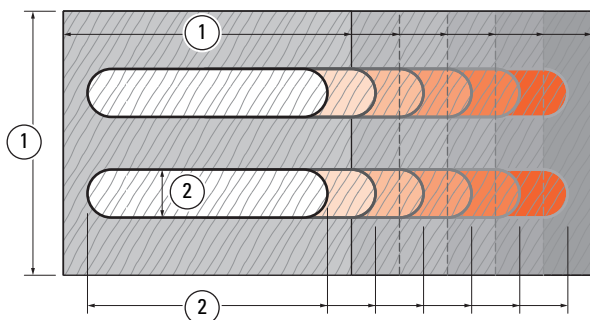
### A1-6 Largest Tandem Double Tenon

(using two table positions)

Workpiece  $1\frac{5}{16}$ " x  $5\frac{1}{2}$ " [34 x 140mm] ①.

Tenons  $\frac{1}{2}$ " x 2" [12 x 50mm] ②.

Guide  $\frac{1}{2}$ " x 2" [12 x 50mm].



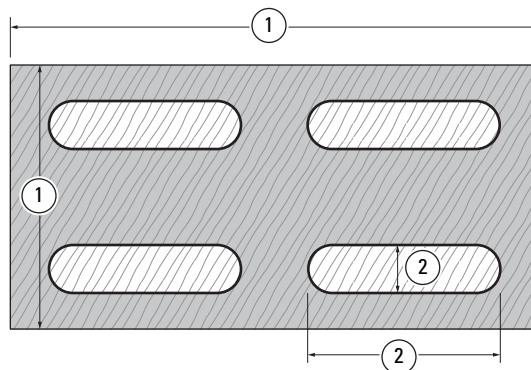
### A1-7 Largest Side-by-Side Twin Tenon (two\* table positions)

Workpiece 3" x  $5\frac{1}{2}$ " [76 x 140mm] ①.

Tenons  $\frac{1}{2}$ " x  $2\frac{1}{2}$ " [12 x 65+mm] ②.

Guide  $\frac{1}{2}$ " x  $2\frac{1}{2}$ " [12 x 65mm].

*\*Note: Add left-right table positions to the two front-back settings, for maximum workpiece and tenons extension. See A1-5.*

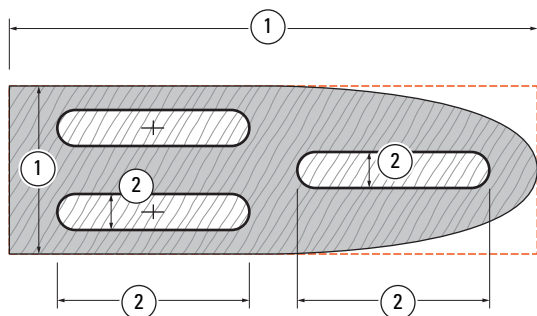


### A1-8 Largest Quadruple Tenon (four table positions)

Workpiece 3" x  $5\frac{1}{2}$ " [76 x 140mm] ①.

Tenons  $\frac{1}{2}$ " x 2" [12 x 50mm] ②.

Guide  $\frac{1}{2}$ " x 2" [12 x 50mm].



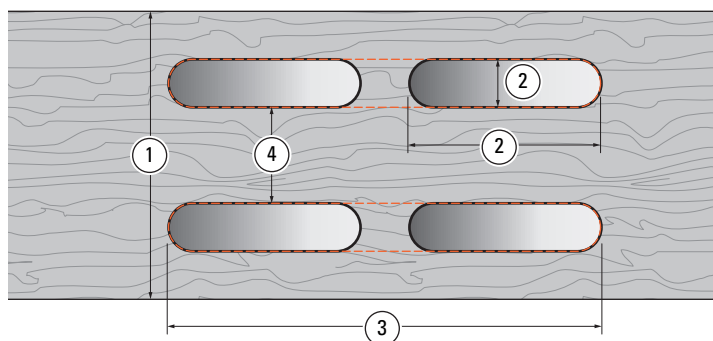
### A1-9 Largest Triple Tenon (five\* table positions)

Workpiece  $1\frac{3}{4}$ " x  $5\frac{1}{2}$ " [44 x 140mm] ①.

Tenons  $\frac{3}{8}$ " x 2" [10 x 50mm] ②.

Guide  $\frac{3}{8}$ " x 2" [10 x 50mm].

*\*Note: To avoid "trapping" the bit on larger workpieces, rout the third tenon in three different 8FB table positions. See Chapter 5, "Triple Joints".*



### A1-10 Thickest Mortise Board and Mortise Centers (four table positions)

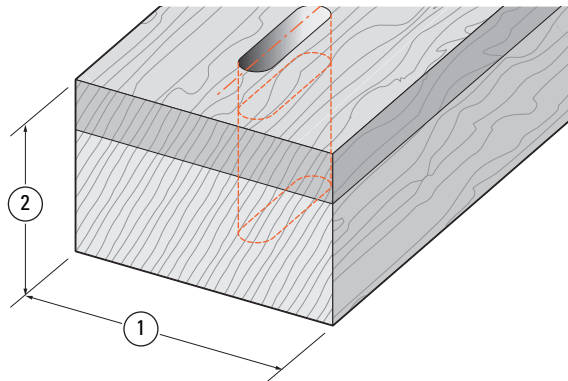
Thickness 3" [75mm] ①.

4 Mortises  $\frac{1}{2}$ " x 2" [12 x 50mm] ②.

2 Mortises  $\frac{1}{2}$ " x  $4\frac{1}{2}$ " [12 x 115mm] ③.

Spacing  $\frac{9}{16}$ " to 1" [13 x 26mm] ④.

Board Width Clamping Capacity: 5" [128mm].

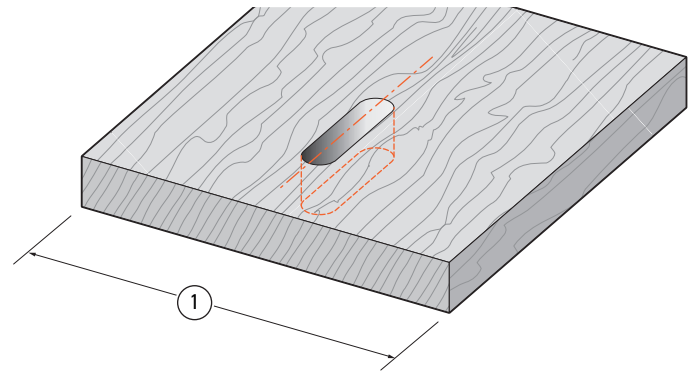


### A1-11 Widest, Deepest Workpieces for Mortising to Center

Width up to 4 $\frac{5}{8}$ " [115mm] ①.

Depth up to 4" [100mm] ②.

*Note: See 6-21 for mounting instructions for these pieces.*



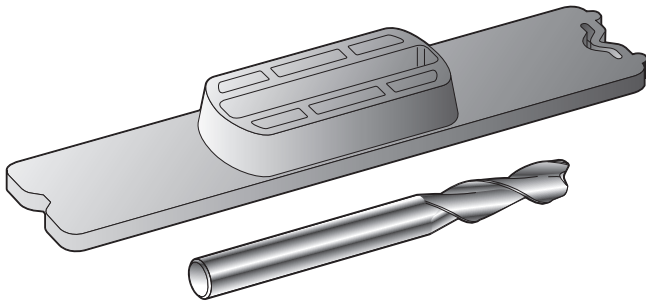
### A1-12 Maximum-width Board for Mortising to Center

Width from 4 $\frac{5}{8}$ " [115mm]

up to 6 $\frac{1}{2}$ " [165mm] ①

*Note: See 6-22 for special instructions.* ■

## Guide and Bit Selection



Use the charts on the next few pages to select appropriate guide and bit combinations. →

INCH GUIDE AND BIT SELECTION CHART							
JOINT SIZE	MORTISE BIT	TENON BIT	GUIDE SIZE	JOINT SIZE	MORTISE BIT	TENON BIT	GUIDE SIZE
1/16" x 1/8"	1/16	7/16	1/4" x 5/16"	1/4" x 5/16"	1/4	1/4	1/4" x 5/16"
1/16" x 3/16"	1/16	7/16	1/4" x 3/8"	1/4" x 3/8"	1/4	1/4	1/4" x 3/8"
1/16" x 5/16"	1/16	7/16	1/4" x 1/2"	1/4" x 7/16"	1/4	3/8	5/16" x 1/2"
1/16" x 7/16"	1/16	7/16	1/4" x 5/8"	1/4" x 1/2"	1/4	1/4	1/4" x 1/2"
1/16" x 9/16"	1/16	7/16	1/4" x 3/4"	1/4" x 5/8"	1/4	1/4	1/4" x 5/8"
1/16" x 13/16"	1/16	7/16	1/4" x 1"	1/4" x 11/16"	1/4	3/8	5/16" x 3/4"
1/16" x 1-1/16"	1/16	7/16	1/4" x 1-1/4"	1/4" x 3/4"	1/4	1/4	1/4" x 3/4"
1/16" x 1-5/16"	1/16	7/16	1/4" x 1-1/2"	1/4" x 15/16"	1/4	3/8	5/16" x 1"
1/8" x 3/16"	1/8	3/8	1/4" x 5/16"	1/4" x 1"	1/4	1/4	1/4" x 1"
1/8" x 1/4"	1/8	3/8	1/4" x 3/8"	1/4" x 1-3/16"	1/4	3/8	5/16" x 1-1/4"
1/8" x 5/16"	1/8	1/2	5/16" x 1/2"	1/4" x 1-1/4"	1/4	1/4	1/4" x 1-1/4"
1/8" x 3/8"	1/8	3/8	1/4" x 1/2"	1/4" x 1-3/8"	1/4	1/2	3/8" x 1-1/2"
1/8" x 1/2"	1/8	3/8	1/4" x 5/8"	1/4" x 1-7/16"	1/4	3/8	5/16" x 1-1/2"
1/8" x 9/16"	1/8	1/2	5/16" x 3/4"	1/4" x 1-1/2"	1/4	1/4	1/4" x 1-1/2"
1/8" x 5/8"	1/8	3/8	1/4" x 3/4"	1/4" x 1-7/8"	1/4	1/2	3/8" x 2"
1/8" x 13/16"	1/8	1/2	5/16" x 1"	1/4" x 2-3/8"	1/4	1/2	3/8" x 2-1/2"
1/8" x 7/8"	1/8	3/8	1/4" x 1"	5/16" x 1/2"	5/16	5/16	5/16" x 1/2"
1/8" x 1-1/16"	1/8	1/2	5/16" x 1-1/4"	5/16" x 3/4"	5/16	5/16	5/16" x 3/4"
1/8" x 1-1/8"	1/8	3/8	1/4" x 1-1/4"	5/16" x 15/16"	5/16	7/16	3/8" x 1"
1/8" x 1-5/16"	1/8	1/2	5/16" x 1-1/2"	5/16" x 1"	5/16	5/16	5/16" x 1"
1/8" x 1-3/8"	1/8	3/8	1/4" x 1-1/2"	5/16" x 1-1/4"	5/16	5/16	5/16" x 1-1/4"
3/16" x 1/4"	3/16	5/16	1/4" x 5/16"	5/16" x 1-7/16"	5/16	7/16	3/8" x 1-1/2"
3/16" x 5/16"	3/16	5/16	1/4" x 3/8"	5/16" x 1-1/2"	5/16	5/16	5/16" x 1-1/2"
3/16" x 3/8"	3/16	7/16	5/16" x 1/2"	5/16" x 1-15/16"	5/16	7/16	3/8" x 2"
3/16" x 7/16"	3/16	5/16	1/4" x 1/2"	5/16" x 2-7/16"	5/16	7/16	3/8" x 2-1/2"
3/16" x 9/16"	3/16	5/16	1/4" x 5/8"	3/8" x 1"	3/8	3/8	3/8" x 1"
3/16" x 5/8"	3/16	7/16	5/16" x 3/4"	3/8" x 1-1/2"	3/8	3/8	3/8" x 1/2"
3/16" x 11/16"	3/16	5/16	1/4" x 3/4"	3/8" x 2"	3/8	3/8	3/8" x 2"
3/16" x 7/8"	3/16	7/16	5/16" x 1"	3/8" x 2-1/2"	3/8	3/8	3/8" x 2-1/2"
3/16" x 15/16"	3/16	5/16	1/4" x 1"	1/2" x 1"	1/2	1/2	1/2" x 1"
3/16" x 1-1/8"	3/16	7/16	5/16" x 1-1/4"	1/2" x 1-1/2"	1/2	1/2	1/2" x 1-1/2"
3/16" x 1-3/16"	3/16	5/16	1/4" x 1-1/4"	1/2" x 2"	1/2	1/2	1/2" x 2"
3/16" x 1-3/8"	3/16	7/16	5/16" x 1-1/2"	1/2" x 2-1/2"	1/2	1/2	1/2" x 2-1/2"
3/16" x 1-7/16"	3/16	5/16	1/4" x 1-1/2"				

Note: Joints routed with a single bit are shown shaded.

In addition to the joint sizes listed in the charts, any tenon width (mortise length) can easily be achieved by using the jig's quick-acting table movement and limit stops (see Chapter 6, Longer and Shorter Joints). By using combinations of machine tool bits, even more sizes of small and miniature joints may be routed (see Chapter 4, Small Joints).

BIT SPECIFICATIONS					
LEIGH BIT ITEM NO.		A	B	B	C
HSS Spiral Upcut	Solid Carbide Spiral Upcut	Mortise Size Cutting Diameter	HSS Cutting Depth	Solid Carbide Cutting Depth	Shank Diameter
162	N/A	1/16"	3/16"	-	1/4"
164	164C	1/8"	3/8"	1/2"	1/4"
166	166C	3/16"	5/8"	3/4"	1/4"
168	168C	1/4"	1"	1-1/8"	1/4"
170-500	170-500C	5/16"	1"	1-1/8"	1/2"
173-500	173-500C	3/8"	1-1/4"	1-1/4"	1/2"
177	177C	7/16"	1-3/4"	1-3/4"	1/2"
180	180CL	1/2"	1-1/2"	2-1/8"	1/2"

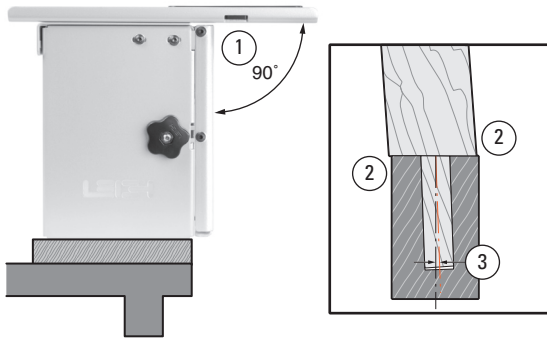
Note: For metric bit specifications, please see your national Leigh distributor.

METRIC GUIDE AND BIT SELECTION CHART							
JOINT SIZE	MORTISE BIT	TENON BIT	GUIDE SIZE	JOINT SIZE	MORTISE BIT	TENON BIT	GUIDE SIZE
2 x 4	2	10	6 x 8	6 x 8	6	6	6 x 8
2 x 6	2	10	6 x 10	6 x 10	6	6	6 x 10
2 x 11	2	10	6 x 15	6 x 13	6	10	8 x 15
2 x 16	2	10	6 x 20	6 x 15	6	6	6 x 15
2 x 21	2	10	6 x 25	6 x 18	6	10	8 x 20
2 x 26	2	10	6 x 30	6 x 20	6	6	6 x 20
2 x 31	2	10	6 x 35	6 x 23	6	10	8 x 25
2 x 36	2	10	6 x 40	6 x 25	6	6	6 x 25
3 x 5	3	9	6 x 8	6 x 28	6	10	8 x 30
3 x 7	3	9	6 x 10	6 x 30	6	6	6 x 30
3 x 12	3	9	6 x 15	6 x 33	6	10	8 x 35
3 x 17	3	9	6 x 20	6 x 35	6	6	6 x 35
3 x 22	3	9	6 x 25	6 x 38	6	10	8 x 40
3 x 27	3	9	6 x 30	6 x 40	6	6	6 x 40
3 x 32	3	9	6 x 35	7 x 14	7	9	8 x 15
3 x 37	3	9	6 x 40	7 x 19	7	9	8 x 20
4 x 6	4	8	6 x 8	7 x 24	7	9	8 x 25
4 x 8	4	8	6 x 10	7 x 29	7	9	8 x 30
4 x 11	4	12	8 x 15	7 x 34	7	9	8 x 35
4 x 13	4	8	6 x 15	7 x 39	7	9	8 x 40
4 x 16	4	12	8 x 20	8 x 15	8	8	8 x 15
4 x 18	4	8	6 x 20	8 x 20	8	8	8 x 20
4 x 21	4	12	8 x 25	8 x 23	8	12	10 x 25
4 x 23	4	8	6 x 25	8 x 25	8	8	8 x 25
4 x 26	4	12	8 x 30	8 x 30	8	8	8 x 30
4 x 28	4	8	6 x 30	8 x 33	8	12	10 x 35
4 x 31	4	12	8 x 35	8 x 35	8	8	8 x 35
4 x 33	4	8	6 x 35	8 x 40	8	8	8 x 40
4 x 36	4	12	8 x 40	8 x 43	8	12	10 x 45
4 x 38	4	8	6 x 40	8 x 53	8	12	10 x 55
5 x 7	5	7	6 x 8	8 x 63	8	12	10 x 65
5 x 9	5	7	6 x 10	10 x 25	10	10	10 x 25
5 x 14	5	7	6 x 15	10 x 35	10	10	10 x 35
5 x 19	5	7	6 x 20	10 x 45	10	10	10 x 45
5 x 24	5	7	6 x 25	10 x 55	10	10	10 x 55
5 x 29	5	7	6 x 30	10 x 65	10	10	10 x 65
5 x 34	5	7	6 x 35	12 x 25	12	12	12 x 25
5 x 39	5	7	6 x 40	12 x 35	12	12	12 x 35
				12 x 45	12	12	12 x 45
				12 x 55	12	12	12 x 55
				12 x 65	12	12	12 x 65

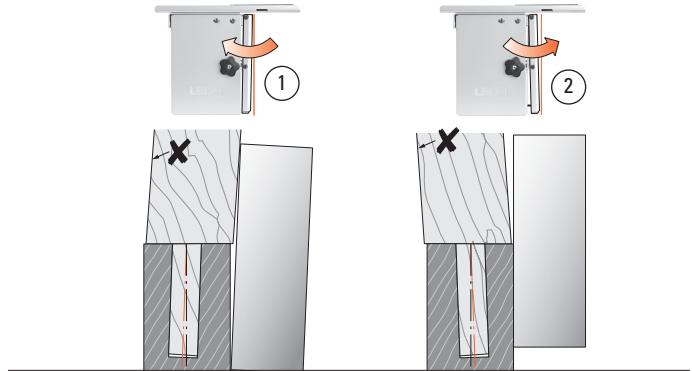


## SUPER FMT Appendix II

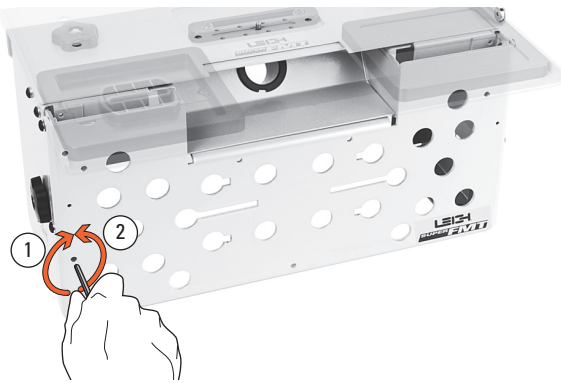
# Jig Adjustments



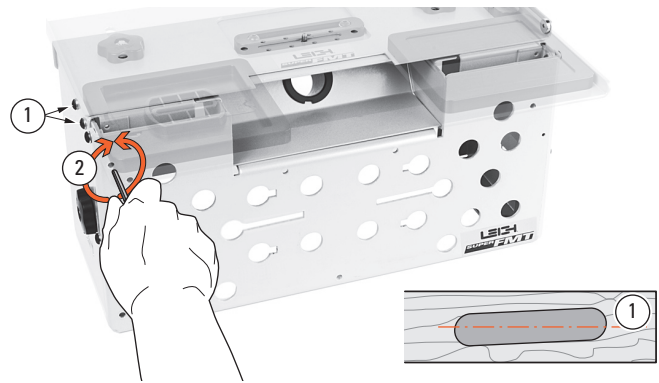
**A2-1 Clamp Plate** The clamp plate is factory set square to the table ①. However, this does not guarantee perfectly in-line joints. If your router shaft and bit are not perpendicular to the router sub-base and the Leigh sub-base, then the bit will not be square to the jig table (nor parallel to the clamp plate). This will cause a tiny “step” in the joint alignment ②. This is because the tenon center mark is now offset from the mortise center mark in the assembled joint ③. For clarity, the angle and step in this example is highly exaggerated.



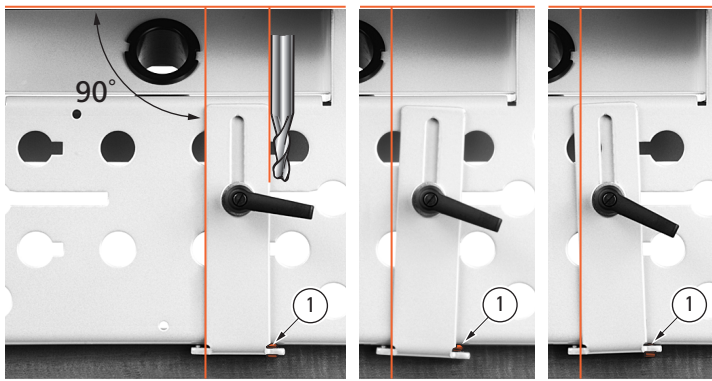
**A2-2** Check your test joints for alignment with a straightedge. The cross represents the inside face toward the clamp face. The left example shows the clamp plate should be adjusted in toward the jig body ①. The right example shows the clamp plate should be adjusted away from the jig body ②. Test and adjust the clamp plate angle (see below) until the workpieces are in the same plane, with no joint misalignment.



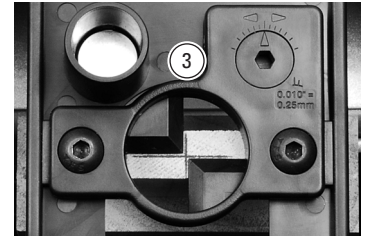
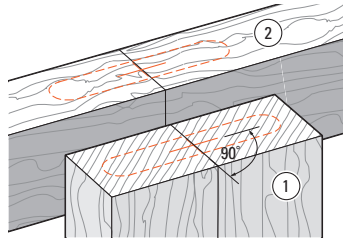
**A2-3** The adjusting screw for setting the clamp plate is in the lower left front of the jig base. Loosen the quadrant knobs. Use the hex screwdriver to turn the screw clockwise to move the plate in ①. Turn the screw counterclockwise to move the plate out ②. The screw is treated with Loctite™ to prevent accidental rotation and will require firm pressure to adjust.



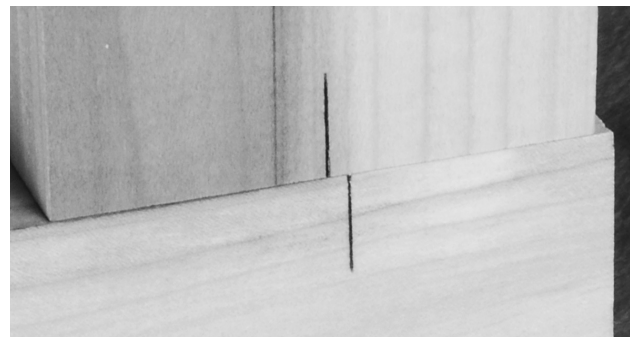
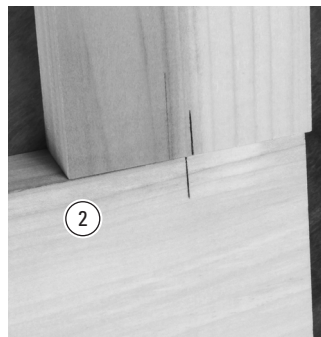
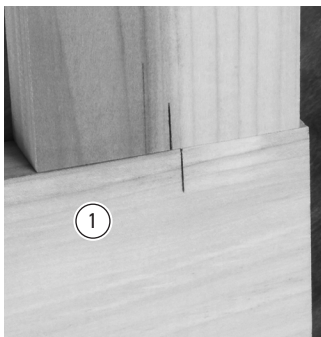
**A2-4 Joint Alignment** The clamp plate is factory set parallel to the guide track centerline and should not need attention. If the mortise or tenon is angled ① an adjustment may be required. Here’s how: Slightly loosen the two screws ① holding the left end quadrant using the hex driver. Turn the screw in or out ② to adjust the angle of the clamp plate relative to the guide track centerline. Firmly tighten the screws. After tightening the two screws, turn the adjusting screw in towards the jig body at least two full turns. Rout test joints to check the joint alignment.



**A2-5 Sidestop Squareness** The travel of the router bit must be perfectly parallel to the sidestop fence. The fence is factory set square to the bottom of the jig table, however, tolerances in plunge routers may necessitate a small sidestop adjustment. If adjustment is required, the set screw on the bottom right side of the sidestop fence ① is turned in or out to change the angle of the fence.

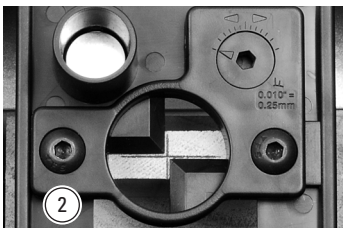
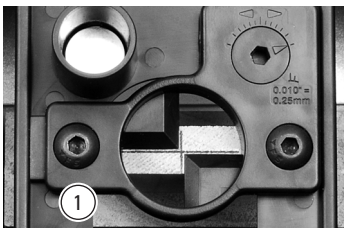


**A2-6 Sight Adjustment Procedure** Mark layout lines on the tenon piece ① and the mortise piece ②. Carefully sight the tenon piece in the jig ③. Be sure the layout marks are not touching either side of the sight. Rout the mortise and tenon, assemble the joint and check the layout marks.



**A2-7** If your joints are misaligned like this ① or this ② (exaggerated) first **double check** that the router collet is perfectly centered on the sub-base as in figures 2-11 to 2-31. When the router is perfectly centered, proceed to A2-8.

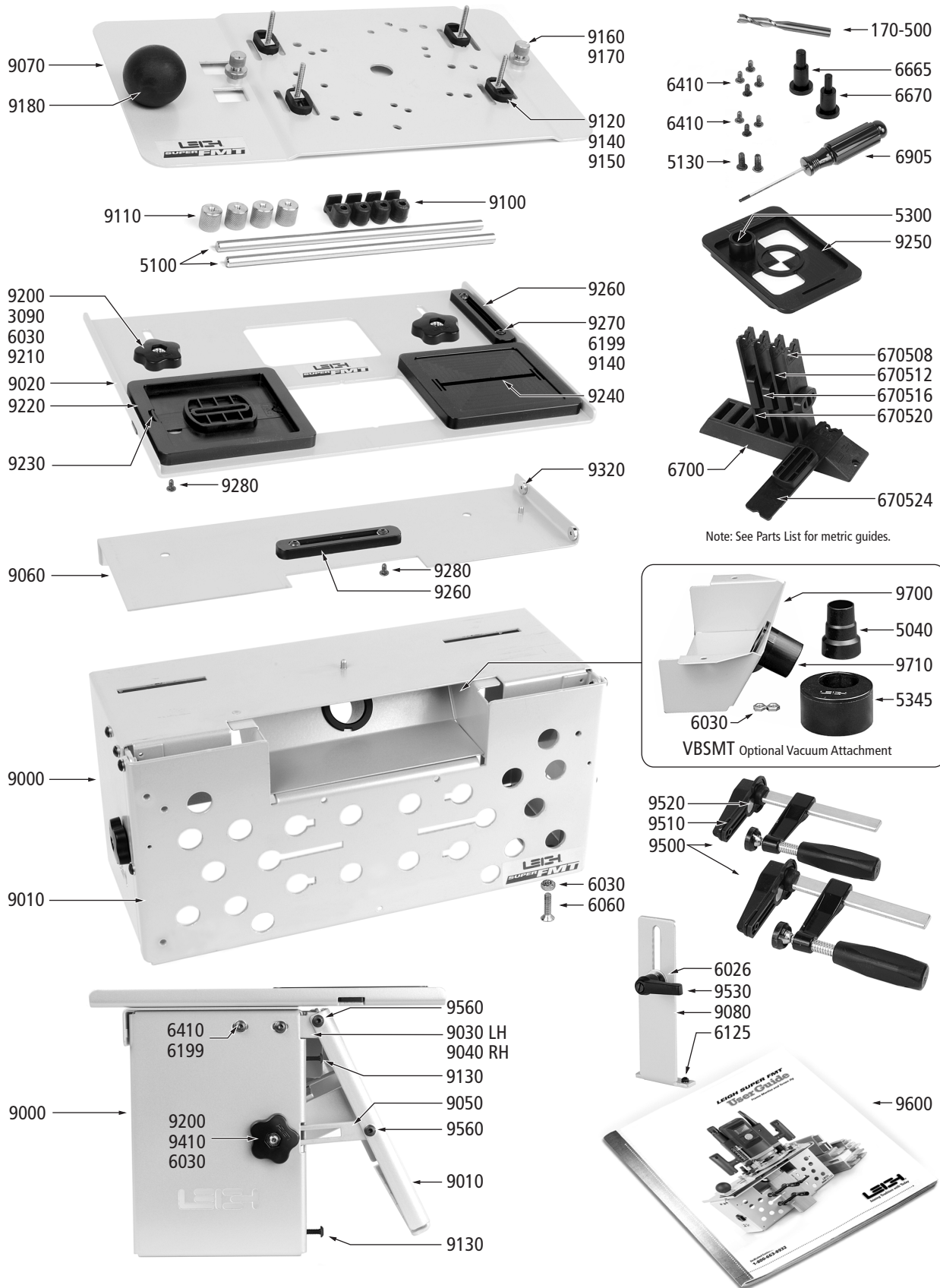
**A2-8** In this example, the mortise board is clamped on the left side of the jig and the tenon piece is offset to the left. The sight needs to be adjusted by *half* the amount of the offset **because changes to the site position affect the mortise and tenon.**



**A2-9 Here's How** *Note: Each division on the dial equals an adjustment of 0.010".* If the tenon piece is off **left of center** (A2-7 ①), loosen the sight locking screws and using the hex driver in the sight adjusting dial, move the sight **left, by half of the joint offset** ①. If the tenon piece is off **right of center** (A2-7 ②), using the hex driver in the sight adjusting dial, move the sight **right by half of the joint offset** ②. ■

**Super FMT Parts List**

PART NO.	QUANTITY PER JIG	PART DESCRIPTION	PART NO.	QUANTITY PER JIG	PART DESCRIPTION
<b>MAIN COMPONENTS</b>			<b>CLAMP PLATE COMPONENTS</b>		
9000	1	Jig Frame	6026	1	Sidestop Fender Washer
9010	1	Clamp Plate	6199	4	Flat Washers
9020	1	Table Plate	9080	1	Sidestop Fence
9030	1	LH Clamp Plate Pivot	9500	2	F-Clamps, complete with Magnets and Pads
9040	1	RH Clamp Plate Pivot	9510	2	F-Clamp Back Pads (not shown)
9050	2	Clamp Plate Struts	9520	2	F-Clamp Back Pad Magnets (not shown)
9060	1	Intermediate Plate	9530	1	Sidestop Lever
9070	1	Sub-base	6125	1	Sidestop Set Screw 1/4-28
<b>SUB-BASE COMPONENTS</b>			9550	1	Sidestop Carriage Bolt 1/4-20 x 5/8" (not shown)
5100	2	Router Hold-down Rods	9560	4	Button Head Cap Screws 10-24 x 1/2"
9100	4	Router Rod Clamps	<b>OTHER COMPONENTS</b>		
9110	4	Router Rod Clamp Knobs, Brass	170-500	1	5/16" HSS Spiral Upcut Bit
9120	4	Router Rod Clamp Screws 10-24 x 1-3/4"	5130	2	M6 Screws for Festool OF1400 and OF2200
6410	4	Router Rod Clamp Screws 10-24 x 3/8"	6905	1	1/8" Hex Driver
9140	4	Sliding Washer/Limit Stop Nuts	6030	4	Jig Hold-down Nuts
9150	4	Router Clamp Sliding Washers	6060	4	Jig Hold-down Screws
9160	2	Brass Guide Pins	6410	3	Screws for Porter Cable Router 10-24 x 3/8"
9170	2	Brass Guide Pin Lock Nuts	6665	1	Imperial Router Centering Mandrel 1/4" x 1/2"
9180	1	Sub-base Knob	6670	1	Metric Router Centering Mandrel 8mm x 12mm
<b>TABLE AND INTERMEDIATE PLATE COMPONENTS</b>			6700	1	Template Guide Stand
3090	2	Carriage Bolts 1/4-20 x 3/4"	6705	1	5/16" Template Guide Set ( <b>Inch Jig only</b> )
5300	1	Sight Magnet	670508	1	5/16" x 1/2" Template Guide
6030	2	Table/Pivot Knob, Vac Box Nuts	670512	1	5/16" x 3/4" Template Guide
6199	4	Limit Stop Washers	670516	1	5/16" x 1" Template Guide
9140	4	Sliding Washer/Limit Stop Nuts	670520	1	5/16" x 1-1/4" Template Guide
9200	2	Table/Pivot Lock Knobs	670524	1	5/16" x 1-1/2" Template Guide
9210	2	Nylon Washers (not shown)	6808	1	8mm Template Guide Set ( <b>Metric Jig only</b> )
9220	1	Guide Base	680815	1	8 mm x 15 mm Template Guide
9230	1	Guide Base Latch	680820	1	8 mm x 20 mm Template Guide
9240	1	Guide Pin Track	680825	1	8 mm x 25 mm Template Guide
9250	1	Sight	680830	1	8 mm x 30 mm Template Guide
9260	2	Limit Stop Tracks	680835	1	8 mm x 35 mm Template Guide
9270	4	Limit Stop Screws	680840	1	8 mm x 40 mm Template Guide
9280	4	Limit Stop Track Hold-down Screws	9600	1	User Guide
9280	12	Guide Base, Guide Pin Track Hold-down Screws (n/s)		1	Serial Number Decal (not shown)
9300	1	UHMW Table Plate Strip 6-3/4" x 1/4" (not shown)	VBSMT	1	<b>OPTIONAL COMPONENTS</b>
9310	2	UHMW Intermediate Plate Strips (not shown)	5040	1	Vacuum Box Attachment
9320	2	Ring Magnets	5345	1	Small Hose Adaptor
<b>MAIN FRAME COMPONENTS</b>			6030	2	Large Hose Adaptor
6030	2	Table/Pivot Knob, Vac Box Nuts	9700	1	Table/Pivot Knob, Vac Box Nuts
6199	4	Flat Washers	9710	1	Vac Box
6410	4	Button Head Cap Screws 10-24 x 3/8"			Vac Box Nozzle
9130	2	Clamp Plate Angle Adjustment Screws			
9200	2	Table/Pivot Lock Knobs			
9320	2	Ring Magnets (not shown)			
9410	2	Carriage Bolts 1/4-20 x 1/2" (not shown)			





## SUPER FMT Appendix IV

# Customer Support

### Our Commitment to You

At Leigh Industries we take pride in our commitment to provide excellence in customer service and support. We hope your use of the Leigh Super FMT is enjoyable, rewarding and most of all, trouble free. This user guide should provide you with the answers to any questions you may have. If this is not the case, please feel free to contact our technical support staff or our distributor in your country by any of the means listed below.

### Manufacturer: Canada & USA

Leigh Industries Ltd. (EST. 1981)  
P.O. Box 357,  
1615 Industrial Ave.,  
Port *Coquitlam*, B.C.,  
Canada V3C 4K6

Toll Free: 800-663-8932  
Tel: (604) 464-2700  
Fax: (604) 464-7404  
\*Email: leigh@leighjigs.com  
Web: www.leighjigs.com

\*Email can be useful, but technical queries usually raise queries from us. The telephone (if possible) is a much quicker and more convenient way to get those queries answered; either directly to Leigh (toll free in North America) or to your national distributor.  
... Thanks!

### Distributors

#### Australia & New Zealand

##### Carba-Tec Pty. Ltd.

128 Ingleston Rd., Wakerley, Qld., 4154  
Australia

Tel: +61 7 3390 5888  
Fax: +61 7 3890 5280  
Order: 1 800 658 111  
Email: orders@carbatec.com.au  
Web: www.carbatec.com.au

#### France

##### Ets Bordet

23 Rue Traversiere  
93556 Montreuil Cedex  
France

Tel: 01 48 58 28 39  
Fax: 01 48 58 48 58  
Email: info@bordet.fr  
Web: www.bordet.fr/

#### Germany, Austria & Switzerland

##### Hacker GMBH

Holzbearbeitungsmaschinen  
Traberhofstraße 103 D-83026

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Deutschland  
Tel: 08031 269650  
Fax: 08031 68221  
Email: hacker.rosenheim@t-online.de  
Web: www.leigh.de

#### Japan

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Email: info@off.co.jp  
Web: www.off.co.jp

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Kyunggi-do, Korea

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Email: smgi@paran.com  
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Email: info@leighjigs.com.ua (Ukraine)  
Web: www.leighjigs.ru (Russia)  
Web: www.leighjigs.ua (Ukraine)

#### South Africa

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Web: www.hardwarecentre.co.za

#### Sweden

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Web: www.toolbox.se

#### United Kingdom & Ireland

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Unit 10a Weycroft Avenue  
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England  
Tel: 0300 100 1008  
Fax: 0300 100 1009  
Email: email@brimarc.com  
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