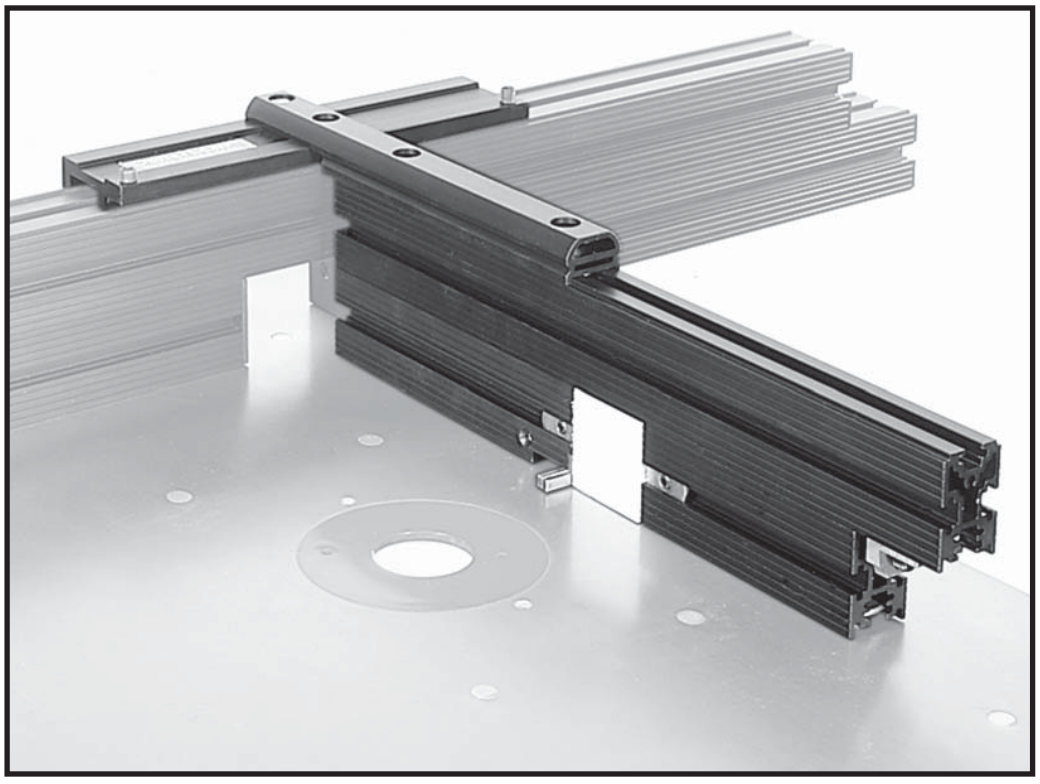
veritas®

Right-Angle Sled

Owner's Manual



05J24.01

U.S. Patent No. 5,890,524

Introduction

The Veritas® Right-Angle Sled straddles the Veritas® Router Fence, giving rock solid support to the right-angle arm.

As with any power tool accessory, you should read all instructions first to be sure that you get the most from the tool while operating it safely. You should first familiarize yourself with the main fence, and only then begin to learn how the sled is used.

The machined slot-joint between the arm and slide guarantees a rigid 90°. In combination with the main fence and table top, the sled offers highly accurate methods of machining wood. **Figure 1** is an exploded view. With the split lower extrusions, the sled performs many of the same functions as the split main fence, except that it does so crosswise to the workpiece, whereas the fence does the same but lengthwise. For example, when making a raised panel door, the groove in the stiles would be cut running the workpiece along the fence, the end cuts on the rails would be cut using the sled, while the panel raising would again be done against the fence.

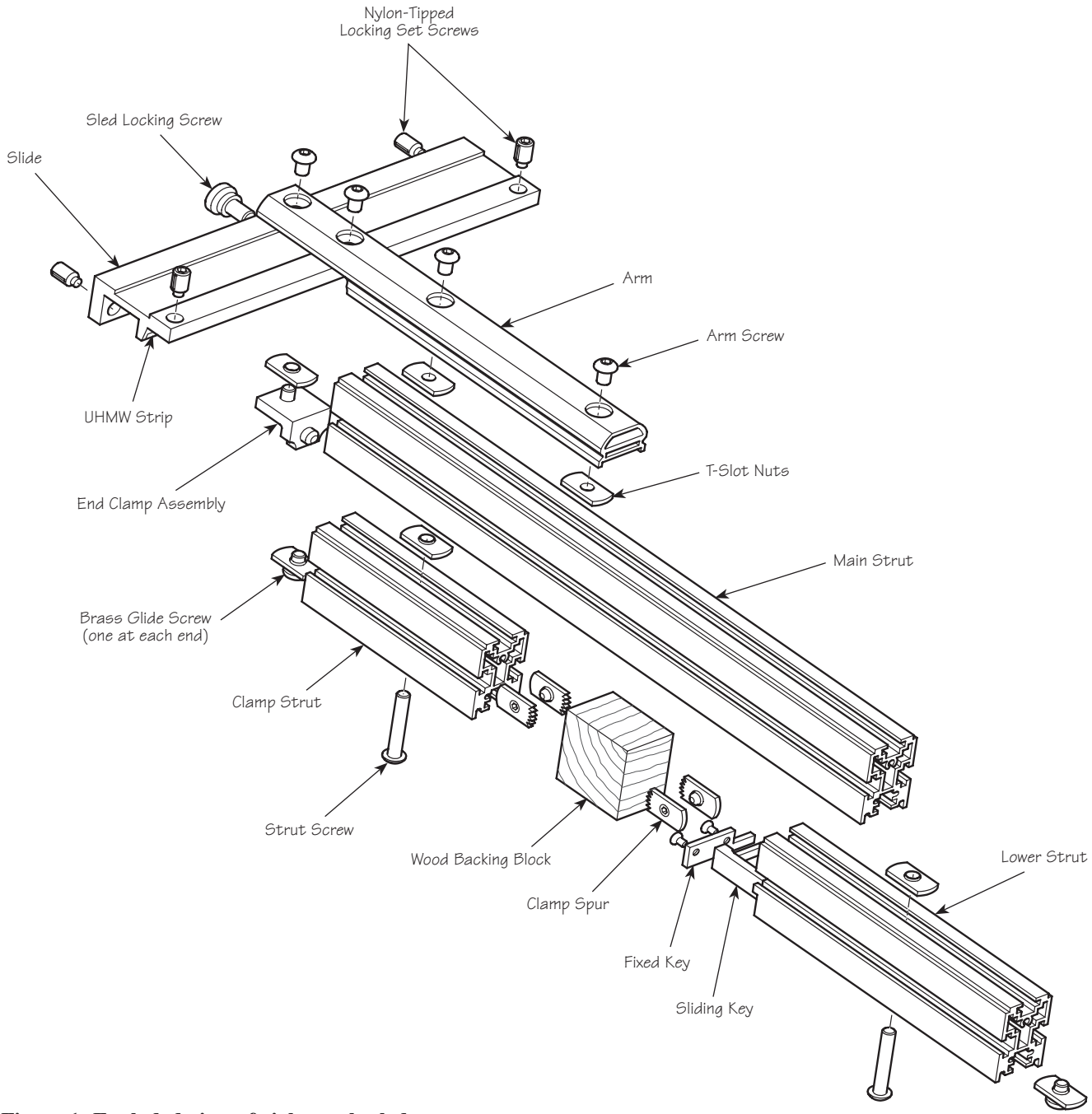


Figure 1: Exploded view of right-angle sled.

Assembly and Adjustment

Attach the arm to the slide as shown in **Figure 2**. Slide the arm backward or forward slightly to align the holes and secure the two bagged button-head screws with the 5/32" hex key provided.

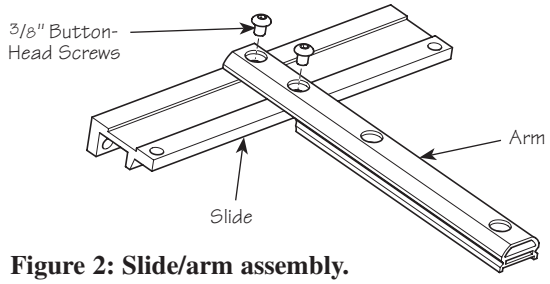


Figure 2: Slide/arm assembly.

Attach the strut assembly to the arm using the two T-slot nuts and screws that are already placed in the arm (see **Figure 3a**). The T-slot nuts have a projection on one face. So that this projection never interferes with the outer portion of the T-slot tracks, it is oriented with this projection furthest away from the exposed face of the T-slot track as shown in **Figure 3b**. All the T-slot nuts throughout the sled come, and should remain, oriented this way.

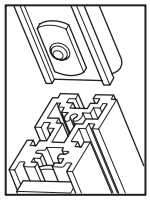


Figure 3b: Note orientation of T-slot nuts.

Figure 3a: Right-angle sled assembly. *Note strut orientation. Ensure engagement of T-slot nuts.*

Other than for a limited number of operations, the sled should rarely need to be disassembled.

Before using the right-angle sled, adjust the sled assembly so that it is exactly perpendicular to the router table surface (see **Figure 4**), and adjust the slide so that it glides along the fence with minimal play (see **Figure 5**). Both adjustments are made to the nylon-tipped locking set screws in the slide. These set screws have a polymer strip so that they will hold their setting during use.

As with the router fence, there is a small amount of lateral play between the upper and lower struts. To align these perfectly, loosen the screw on the bottom side of each lower strut, lay the strut assembly on its face and then tighten the screws. Alternatively, you can leave the strut assembly upright and use your fingers to check top and bottom alignment before tightening; your own sense of touch can be very accurate in detecting slight differences in level.

Perpendicular Adjustment

Place the sled on the fence as shown in **Figure 4**. Using the 5/32" hex key, adjust the two nylon-tipped locking set screws located on the top surface of the slide until the strut assembly is perpendicular to the table top as shown in **Figure 4**. Do **not** extend the set screws so that they partially lift the brass glide screws (located on the underside of the lower struts) off the table.

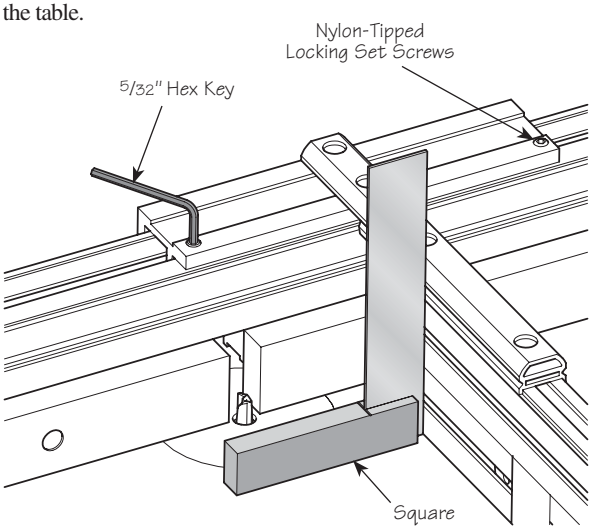


Figure 4: Perpendicular adjustment.

Note: *Depending on the orientation and placement of the main fence, the outer brass glide screw (located on the underside of the lower strut) may overhang the router table top. In such cases, loosen the glide screw and slide it toward the main fence so that it rests on the table top.*

Glide Adjustment

Using the 5/32" hex key, adjust the two nylon-tipped locking set screws located on the side wall of the slide until the sled glides along the fence with no lateral play (see **Figure 5**).

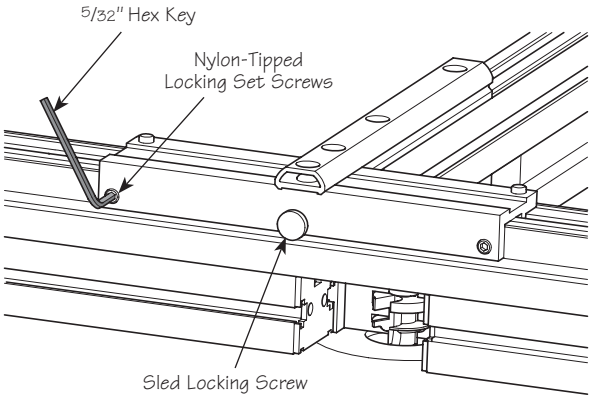


Figure 5: Glide adjustment.

Over time, these four set screws may wear. Periodically recheck them, making any adjustments necessary.

Note: *The sled locking screw is used only for specific operations. For one example, see* ***Cross Routing Wider Pieces****.*

Modes of Operation

The right-angle sled has five main uses:

1. **End Routing:** The fence is positioned with a small amount of the bit exposed and the workpiece rests against the sled with the end in contact with the fence.

2. **End Jointing:** Jointing shims are added to the outfeed sub-fence as normally done for jointing along the fence; the purpose in this case is to joint the ends of a workpiece to remove cut-off saw marks or to square up the workpiece ends.

3. **Cross Routing:** The fence is positioned so that the bit passes through the split in the sled, allowing crosscuts to be made anywhere along the length of the workpiece.

4. **Mortising and Tenoning:** Using the fence, a controlled mortise can be cut as the workpiece and fence slide together as a unit. The mating tenon can then be routed using the right-angle sled in a manner similar to end routing.

5. **Finger Jointing:** The sled is operated in a manner similar to cross routing, except for the use of two positioning keys to control the spacing between fingers.

Each of these operations is explained further in this manual. As you use the sled, you will discover other methods using combinations of these.

Note: *It is important to remember that the fence micro-adjust is calibrated to read the movement at the bit only when the fence is placed across the 24" (600mm) dimension of the router table. To provide added support to your workpiece, you may wish to orient the fence across the 16" (400mm) dimension, as shown in many of the diagrams throughout this manual. Although the micro-adjust can still be used with the fence oriented this way, the readings on the dial will not correspond to the actual fence movement at the bit.*

End Routing

To rout the ends of a workpiece (e.g., for the rails on a raised panel), you should generally set your fence close to the cutter, with the strut assembly of the sled extended so that there is space between it and the fence for the router bit to clear. Due to the counterclockwise rotation of the router bit when used upside down in a router table, and the direction of feed, your workpiece will tend to be pushed against both the fence and the sled, giving you a fixed surface to receive the thrust.

1. With sub-fences installed on the fence, and the desired bit installed in your router with the height set, adjust the fence to cut the feature slightly shallower than required; the fence can be adjusted to its final position once a test cut is made.

2. Loosen both arm screws and retract the strut assembly from the fence so there is sufficient space for the bit to clear the end clamp (see **Figure 6**).

   Note: *If the bit is higher than 1" (25 mm), remove the end clamp.*

   Warning: *Always ensure that there is ample clearance between the bit and the end clamp.*

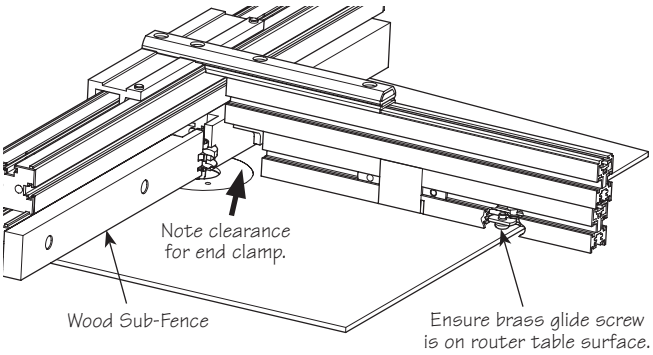


Figure 6: Sled set-up for end routing.

3. With a test piece held against the sled, and the end of the test piece up against the sub-fences, push the test piece through the rotating bit (see **Figure 7**). Check for proper depth of cut, making any necessary adjustments to the fence.

   Note: *If there is any sign of tear-out on the back side of the test piece, attach a wooden sub-fence to the lower struts in the same manner as to the fence. Secure this sub-fence to the sled so that there is a slight gap between its end and the sub-fences of the main fence. Rout the bit profile through this sub-fence.*

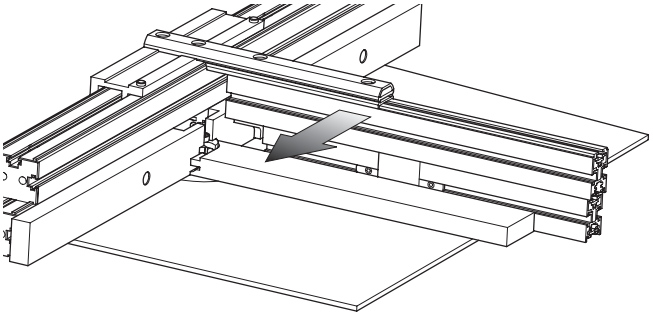


Figure 7: End routing.

End Jointing

End jointing is used to remove crosscut saw marks from the ends of a workpiece, or to trim small amounts with each pass. It is identical to end routing, except that jointing shims are added to the outfeed sub-fence, as normally done for jointing along the fence. This ensures that the routed end surface of the workpiece is fully supported by the outfeed sub-fence.

Cross Routing

Cross routing is very similar to end routing, except that the crosscut is located somewhere in the middle of the board rather than at the ends. There are two significant differences, however. First, the fence must be adjusted so there is a gap between the lower extrusions, allowing the workpiece to be passed through the slot. This limits the height of the workpiece to $1^{5}/_{8}$" (40mm). Second, because the end of the workpiece is not restrained, the counterclockwise rotation of the router bit when used upside down in a router table will tend to kick the workpiece back. All workpieces must be restrained to the sled struts to prevent this. Use a clamp or a gauge/stop stick (see **Shop-Built Aids, Gauge/Stop Stick**).

1. Install the desired bit in your router and set the height slightly lower than required; the bit can be adjusted to its final height once a test cut is made.

2. Adjust the fence so there is a gap between the lower extrusions for the workpiece to pass through (see **Figure 8**). In order for the workpiece to clear the bit at the infeed and outfeed stages of the crosscut, the gap must be at least twice as wide as the workpiece, plus the diameter of the bit. Using the fence and sled this way limits the width of the workpiece to 4″ (100mm). For work up to 8″ (200mm) wide, see **Cross Routing Wider Pieces**.

3. Adjust the fence so the bit will cut into the approximate center of the wood backing block. Lock the fence in this position. Push the sled into the rotating bit so it cuts into the wood backing block.

   Note: *Although the sled can be pushed so a slot is cut right through the wood backing block, this is not necessary. The sled need only be advanced until the cut in the leading edge of the wood backing block is the full width of the bit. With the router off, advance the sled into this blind cut-out, and attach a stop to the fence so that the sled cannot be pushed past this point (use either the* ***Sliding Stop Block*** *illustrated in the* ***Router Fence Manual*** *or see* ***Shop-Built Aids, Sled Stops****).*

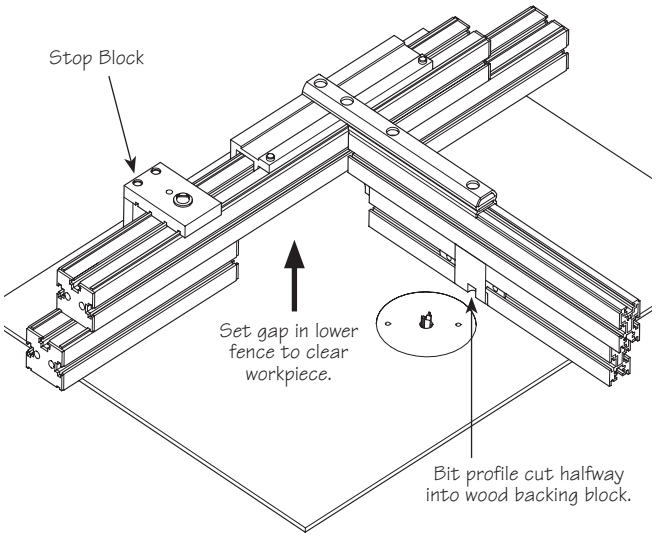


Figure 8: Set-up for cross routing.

4. Pass a test piece through the gap in the fence, clamp it against the sled and push the test piece through the rotating bit (see **Figure 9**). Check for proper depth of cut, making any necessary adjustments.

   Note: *The end-grain wood backing block prevents tear-out on the back side of the workpiece. Although not as effective, a sub-fence may be attached to the struts in lieu of the wood backing block, routing the bit profile into it as was done for* ***End Routing****.*

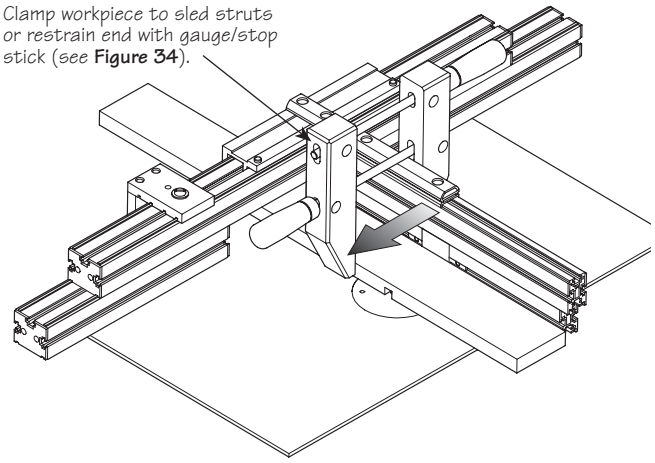


Figure 9: Cross routing.

Cross Routing Wider Pieces

Workpieces up to 8″ (200mm) wide can be cross routed by locking the sled to the fence, and using a pair of position stops (05J21.07) at either end as guides, sliding the entire fence and sled together as a unit (see **Figure 10**).

This procedure is the same as for cross routing pieces up to 4″ (100mm) wide, except for the following:

a) The gap in the fence must be wide enough to accept the wider workpiece.

b) Once the fence is loosely positioned on the table so the bit will cut into the wood backing block, two pairs of position stops are attached to the edge of the table, one at each end of the fence, and one on either side, as shown in **Figure 10**.

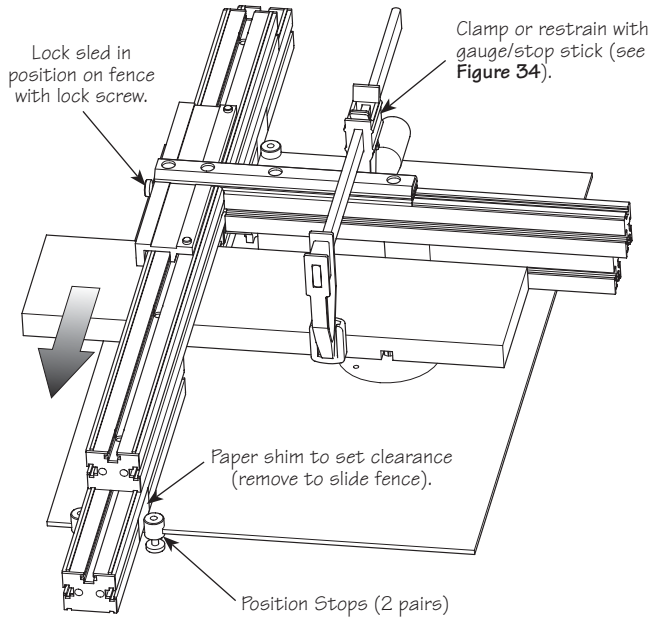


Figure 10: Cross routing pieces wider than 4″ (100mm).

With wider workpieces, it may be necessary to use a metal bar clamp (as shown in **Figure 10**). Use a non-marring pad on the clamp faces to protect both the strut extrusion and the workpiece. Also, ensure that the clamp is not in the path of the cutter in any way.

The position stops should be set so the fence can slide between them with minimal play. A good way of achieving this is to attach two to opposite edges of the table along one side of the fence. Then attach the remaining two to the opposite side of the fence, using a piece of paper between them and the fence as a shim. When the paper is withdrawn, the sliding clearance will be set.

With the infeed side of the sled slightly forward of the opening in the fence (see **Figure 10**), lock the sled to the fence. Check that the sled is free to run back and forth as the fence slides between the position stops.

Mortises and Tenons

Mortises

Making mortises does not require the use of the sled. It is included here, however, as the mortise is the mate to the tenon, which is readily made using the sled in its end routing mode. By allowing the fence to slide linearly (as was done when cross routing wider pieces), a controlled mortise can be cut as the clamped workpiece and fence slide together as a unit. Stops located on the side of the fence control the position and length of the mortise as described below.

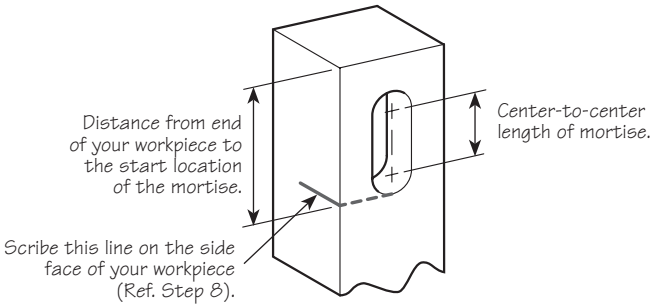


Figure 11: Mortise dimensions.

1. Install the bit required and set the stops on your router to cut the mortise to depth.

   Note: *For routing mortises, bits that have some sort of up-cutting action to help clear the chips work best. These are recognizable by either having their cutting flutes tilted slightly back from vertical, or having spiral flutes.*

2. Extend the lower fence extrusions at least 3″ (75mm) further apart than the length of the mortise that you will be cutting. Attach a sub-fence to the lower extrusions, located so that it straddles the opening in the fence. With the fence oriented approximately parallel to the 24″ (600mm) edge of the table, position it to cut the mortise where required in your workpiece. Using the fence table clamps, firmly clamp the fence to the table. Using a test piece of the same thickness as your workpiece, slide it against the sub-fence into the bit to cut a short groove into the end. Check that the groove is in the desired location. Adjust the fence using the micro-adjust if necessary.

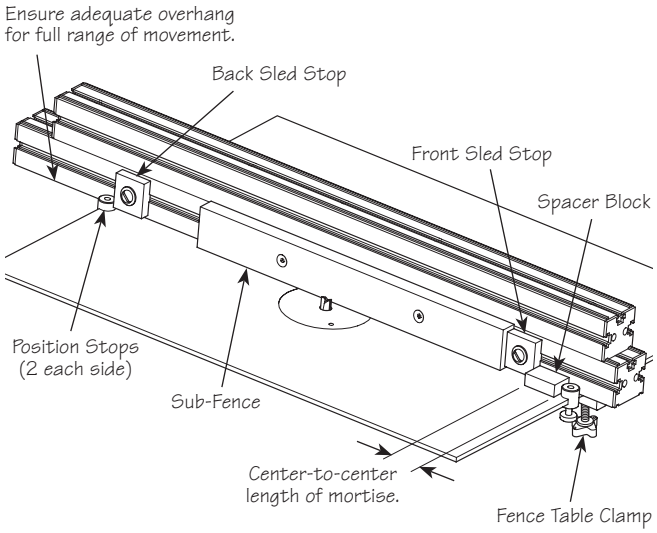


Figure 12: Initial mortising set-up.

3. Attach two pairs of position stops to the edge of the table, one at each end of the fence, and one on either side, as described in **Cross Routing Wider Pieces**. Once the position stops are in place and the clearance has been set, check that the sled is free to run back and forth as the fence slides between the position stops.

4. Use a scrap piece of wood to cut a spacer block that is the same length as the center-to-center length of your required mortise (ref. **Figure 11**).

5. Loosely attach either a pair of shop-made sliding stop blocks to the fence (illustrated in the **Router Fence Owner's Manual**), or the even simpler **Sled Stops** described in **Shop-Built Aids**.

   Note: *The stop blocks can be placed on the back side of the fence if the front becomes too crowded.*

6. Slide the fence so that the rear overhangs the table an adequate amount to accommodate the movement of the fence (minimally the overall length of the mortise plus 2″ (50mm), see **Figure 12**). Temporarily clamp the fence to the table in this position. Place a spacer block on the table and against the fence, so that it contacts the front position stop. Loosen the front sled stop and slide it forward so that the spacer is sandwiched between it and the position stop. Lock the front sled stop in this location.

7. Slide the back sled stop until it contacts the back position stop. Lock it in this location. Remove the spacer block and unclamp the fence. The fence travel is now limited to the center-to-center length of the mortise.

8. As shown in **Figure 11**, scribe a pencil mark on the **side** face of your workpiece to define one end of the mortise location (the side face is marked so it will be visible when you place the workpiece down on the table). Likewise, make a pencil mark on the table, located tangent to the leading edge of the bit and perpendicular to the fence (a small square or piece of wood as shown in **Figure 13** makes this easy).

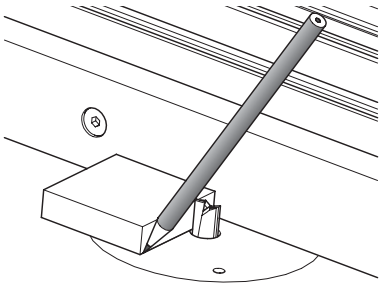


Figure 13: Marking the bit tangent line. *Ensure the line is longer than the width of your workpiece. This line corresponds to the line shown in* ***Figure 11****.*

9. Retract the fence until the front sled stop contacts the front position stop. Place the workpiece down on the table, aligning the marks on the workpiece and the table. Ensure that the workpiece is oriented such that the mortise will be cut on the desired side of the marked line as the fence is pushed forward (see **Figures 11** and **14**). Clamp the workpiece to the fence with the marks aligned.

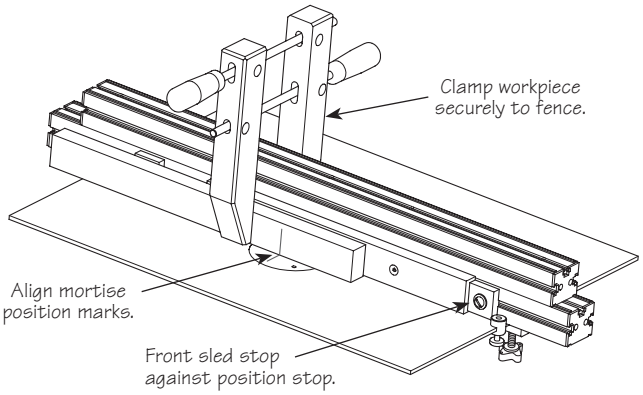


Figure 14: Clamp workpiece to fence with layout lines aligned.

10. With the bit depressed below the router table and the fence retracted so that the front sled stop is in contact with the front position stop, lock the fence to the table. Turn on the router, raise the bit to cut to the full depth of the mortise, then retract it fully (see **Figure 15**).

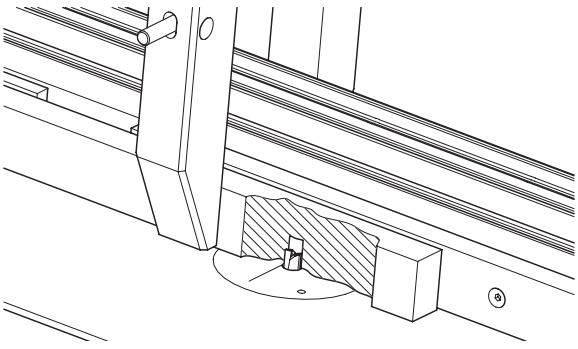


Figure 15: Make first plunge cut to a full depth of mortise. *Ensure fence is securely locked to the router table at both ends.*

11. With the table clamps loosened, rout the waste material to create the mortise. Cut the mortise in multiple passes, raising the bit with each pass, and only pushing the fence forward with each change in mortise depth (the rotation of the bit will force the workpiece against the sub-fence as long as the mortise is cut on the push stroke). Retract the fence assembly with each pass. Raise the router bit in moderate increments with each pass (a rule of thumb is raising the bit in increments approximately equalling the bit diameter). The sound of the cutting and vibration of the workpiece and the pressure needed to push the workpiece into the bit will be your best guide as to how much material can be safely removed with each pass.

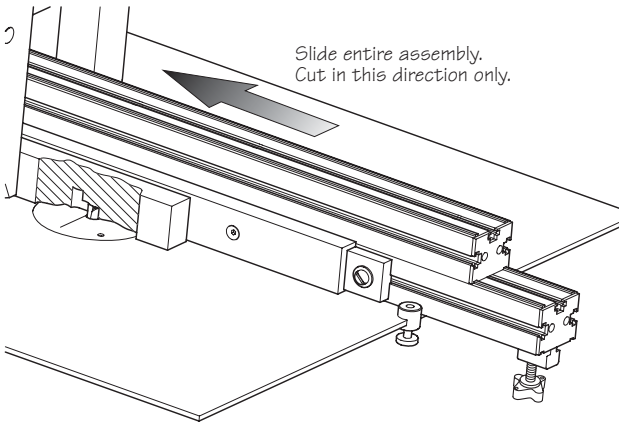


Figure 16: Rout out mortise in several steps. *Ensure fence clamps are fully retracted from both ends.*

Tenons

Tenons are cut on the ends of a workpiece, much the same way as end routing operations are performed. The main differences are:

1. The fence should be set to leave most of the bit exposed. The amount of exposure is ideally the length of the desired tenon.

2. If the length of the tenon required is greater than the bit diameter, multiple passes will have to be made to clean out the required material to the desired tenon shoulder.

Finger Joints

Regularly spaced 1/8″ (3mm) wide and 1/4″ (6mm) to 3/4″ (20mm) wide finger joints can be cut with the addition of the fixed and sliding keys included with your sled.

Notes:

a) Finger joints cannot be made on wood thinner than 3/16" (5mm), the limit being the height of the keys.

b) To set the spacing between the keys, use either a vernier caliper or the fence micro-adjust. To read the fence micro-adjust directly, remember to set the fence across the 24" (600mm) dimension of the router table.

Loosen the arm screws and withdraw the strut assembly. Rotate it 180° so that the keys are now on the inside (working face) of the sled (see **Figure 17**).

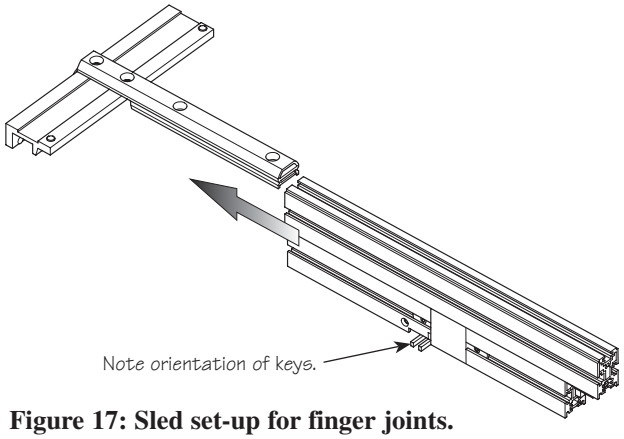


Figure 17: Sled set-up for finger joints.

1. Install a straight cutting bit in your router, of a diameter equal to the size of the fingers that you wish to cut. Set the bit approximately 1/32″ (1mm) higher than the thickness of your workpiece. This will leave a 1/32″ (1mm) sanding allowance on the ends of the fingers when the joint is assembled.

2. To make 1/8″ (3mm) wide finger joints, remove the sliding key as shown in **Figure 18a**, using the 1/8″ hex key provided. To make 1/4″ (6mm) to 3/4″ (20mm) wide finger joints, lock the sliding key against the fixed key as shown in **Figure 18b**.

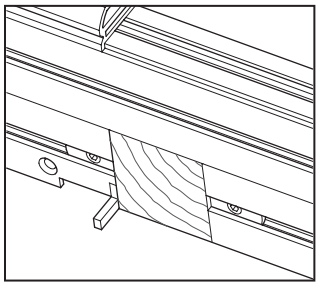


Figure 18a: Key setting for 1/8″ (3mm) finger joints.

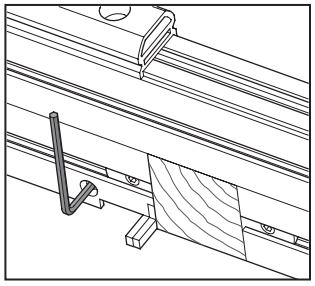


Figure 18b: Sliding key initial setting for 1/4″ (6mm) and larger finger joints.

3. Adjust the fence so the cutting flute of the bit just touches the fixed key. Using the fence micro-adjust or vernier caliper, back the fence away from the fixed key a distance equal to the bit diameter (see **Figure 19**).

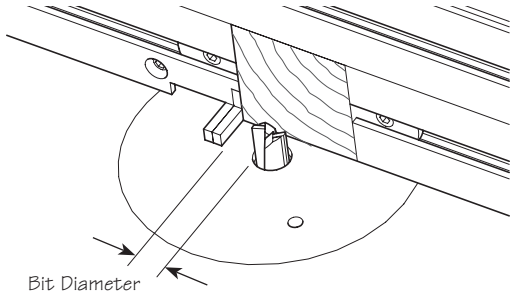


Figure 19: Fence adjustment.

Note: *If the fence is not oriented across the 24" (600mm) dimension, you will have to use a vernier caliper to set this. Also, because the micro-adjust can move the fence no more than ½" (12mm) at the bit, a vernier caliper will have to be used for bits greater than ½" (12mm).*

4. Push the sled into the rotating bit so that it cuts into the wood backing block.

Note: *Although the sled can be pushed so a slot is cut right through the wood backing block, this is not necessary. The sled need only be advanced until the full width of the bit passes into the leading edge of the wood backing block. With the router off, advance the sled into this blind cut-out, and attach a stop to the fence so that the sled cannot be pushed past this point (see* ***Shop-Built Aids, Sled Stops****).*

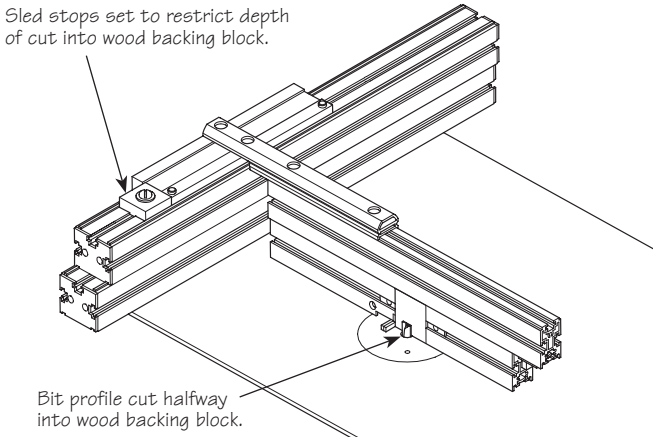


Figure 20: Set-up for cutting finger joints.

5. Square cut the ends of two test pieces, equal in width, 3″ to 4″ (75mm to 100mm) wide, 4″ to 6″ (100mm to 150mm) long, of thickness the same as the lumber you will be finger jointing. Stand one test piece upright against the sled, with the edge against the fixed key, as shown in **Figure 21**. Push this test piece through the rotating bit. Shut off the router.

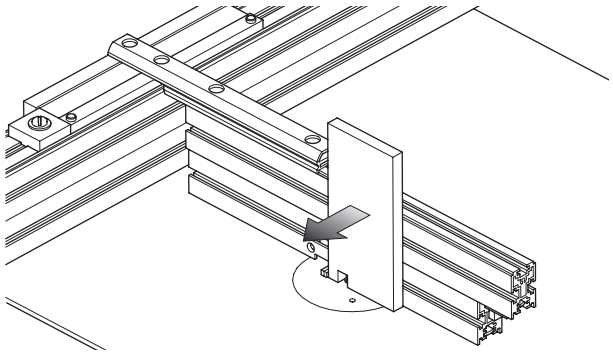


Figure 21: First finger joint cut.

6. Advance the groove just cut onto the keys. If you are making fingers 1/4″ (6mm) or wider, slide the test piece so the side wall of the groove makes contact with the edge of the fixed key, as shown in **Figure 22**. Adjust the sliding key so that the groove slides snugly over both keys. Lock the sliding key in this position.

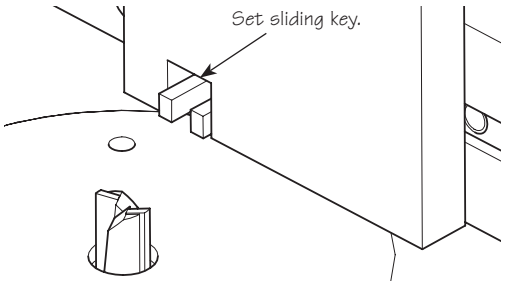


Figure 22: Set sliding key to fit first cut.

7. With the groove resting over the keys, take another cut. Place the second groove over the keys. If there is any noticeable sideways play between the groove and the keys, readjust the sliding key. Continue this step and repeat cutting until the piece is fully cut. With the last groove resting over the keys, clamp the piece to the struts.

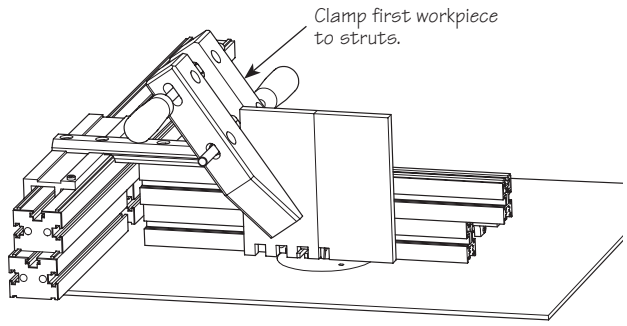


Figure 23: Cutting finger joints in two pieces.

8. Place the second test piece alongside the first. Cut the first groove in the second piece. Unclamp and remove the first piece and continue cutting finger joints in the second piece.

   Note: *If the width of your workpiece is not an exact multiple of the joint spacing, you will be left with partial fingers at the edges of the workpieces. These can be removed by ripping your pieces to an exact multiple, to the width you desire.*

   Note: *Because the first piece approaches the fence as the finger joints progress, the maximum workpiece width that the sled can accommodate with this process is 8" (200mm). To make finger joints on boards up to 16" (400mm), see* ***Tips When Cutting Finger Joints****.*

9. Dry fit the two test pieces together. They should fit together with little force, yet have no free play. A joint that is too tight indicates that the fixed key is further from the bit than the bit diameter. Conversely, a joint that is too loose indicates that the fixed key is closer to the bit than the bit diameter. Readjust the fence position as required (see **Figure 19**). At the same time, check that the fingers project approximately $^{1}/_{32}$″ (1mm) beyond each workpiece. Readjust the bit height if necessary.

10. Repeat a set of finger joints on another test piece to be sure you have a properly set-up joint before you cut the joints on your actual workpieces.

Note: *The above procedure is one of several methods of making finger joints. Most books on routing detail this as well as other techniques.*

An alternative method of establishing the first groove in the second piece is to use a loose key equal in width to the fingers (see **Figure 24**).

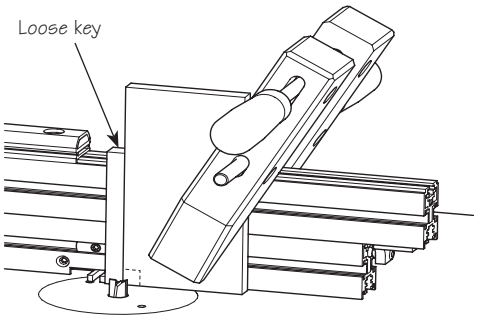


Figure 24: Alternative positioning method.

Slide the loose key and second workpiece up against the fixed key as shown and clamp the workpiece in place. Remove the loose key and rout the first groove.

Tips When Cutting Finger Joints

Wide Boards

Finger joints may be cut on boards up to 8″ (200mm) wide following the procedure just described with the strut assembly fully extended. Simply loosen the arm screws and extend the strut assembly only so far as the inner screw will remain engaged with the T-slot in the upper strut.

Finger joints may be cut on boards up to double this width, to 16″ (400mm), by reversing the sled after half the joint is cut as described below.

1. With the second-to-last finger cut in the workpiece placed over the keys, clamp the workpiece to the sled as shown in **Figure 25**.

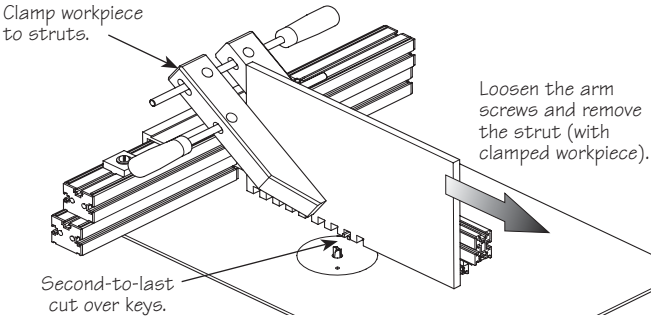


Figure 25: Workpiece clamped to struts with second-to-last cut over keys.

2. Loosen the two arm screws and remove the strut assembly (with clamped workpiece). Reattach the strut assembly so the workpiece is on the opposite side of the sled, as shown in **Figure 26**.

3. Adjust the strut assembly so that the bit is centered within the last finger cut (with the router unplugged, rotate the bit by hand as a check), see **Figure 26**. Lock the strut assembly in this position to the arm.

4. Reset the sled stop (or add a second one) so only the full width of the bit passes into the leading edge of the wood backing block (as done in step 4 of **Finger Joints**).

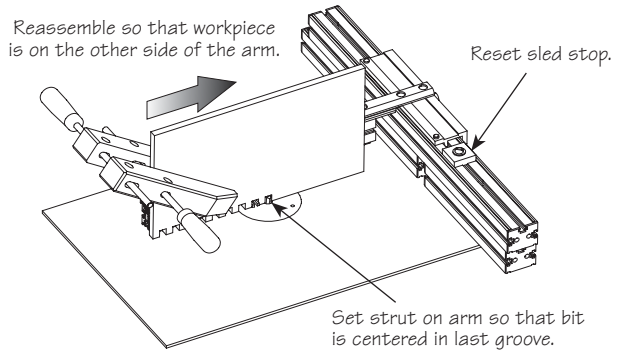


Figure 26: Relocating the strut assembly.

5. Cut the remaining finger joints; the workpiece will now be hopping away from the fence as the cutting progresses.

Reverting to Cross Routing

To revert to cross routing operations, you do not have to remove the keys. Instead, the strut assembly can be withdrawn from the arm and rotated 180° so that the keys are out of the way on the back side of the sled. With the strut assembly oriented this way, depending on bit height, the end clamp may get in the way when end routing. However, it can be removed more easily than removing the wood backing block for removal of the fixed key.

Other Points

Changing the Wood Backing Block

As the wood backing block becomes worn or cut out, it must be replaced. To remove it, refer to **Figure 27** and follow the procedure described below.

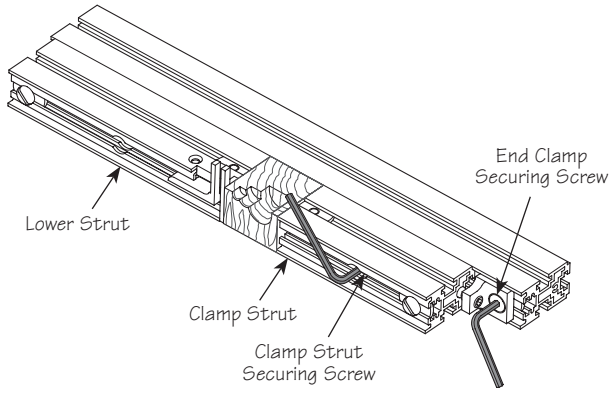


Figure 27: Loosen clamp strut screw and end clamp securing screw.

1. Remove the sled from the fence and loosen the strut screw located on the underside of the clamp strut.

2. Loosen the end clamp securing screw so the clamp strut can be retracted to allow the wood backing block to come out.

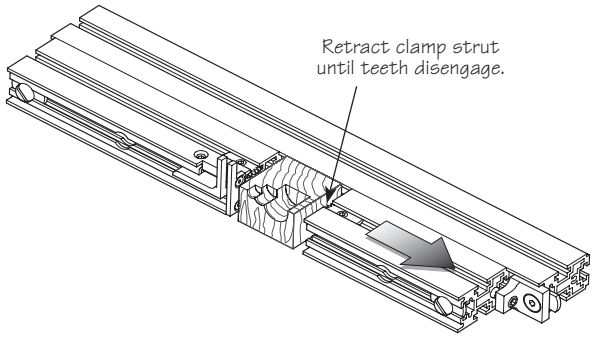


Figure 28: Retract clamp strut and remove used wood backing block.

Replacing the wood backing block is slightly more involved.

1. Check that only the teeth on each of the clamp spurs in the lower struts project beyond the ends of the struts. Using a $^{5}/_{32}$″ hex key, adjust any as required by loosening the set screw.

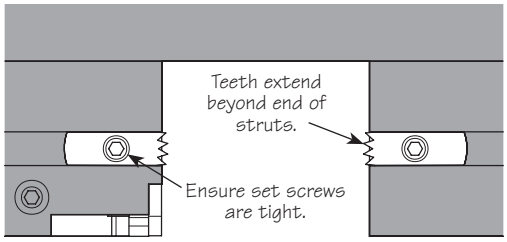


Figure 29: Ensure teeth extend beyond end of struts.

Note: *Ensure that all T-slot nuts are oriented as shown in* ***Figure 3b****.*

2. Check that the lower strut is securely fastened to the main strut; tighten the strut screw on the underside. Likewise, check the clamp strut, ensuring that it is loose. Slide the clamp strut away from the lower strut until there is sufficient room to insert the wood backing block.

3. With the sled placed on the fence, insert the wood backing block in the opening between the lower struts, oriented with the end grain exposed. Slide the clamp strut in until it makes contact with the wood backing block. Back the end clamp set screw off and advance the end clamp until the clamp set screw touches the pin on the end of the clamp strut. Tighten the end clamp securing screw.

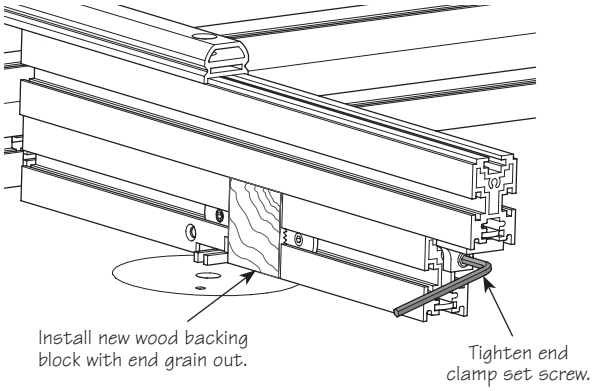


Figure 30: Install new wood backing block (end grain out) and tighten end clamp set screw.

4. With the wood backing block resting on the table top, and the front face held flush with the struts, advance the end clamp set screw so the clamp spurs press into the sides of the wood backing block, continuing until the lower struts firmly clamp the sides of the wood backing block.

Using the Sled as a Crosscut Pusher

The versatility of the sled allows it to be used as a general-purpose right-angle pusher. To avoid having to consider whether the sled is positioned so that it clears the bit without accidentally cutting into the strut assembly, both lower struts can be removed, and a piece of plywood attached to the face of the upper strut as shown below.

This wooden lower strut can be routed into, and replaced as necessary.

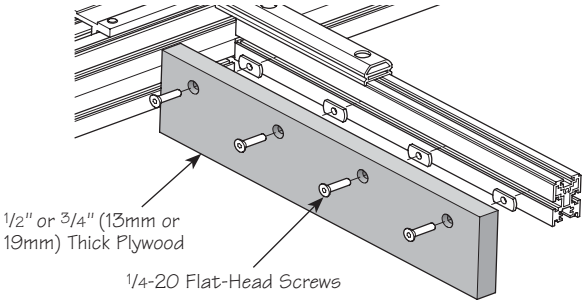


Figure 31: Wooden lower strut. *Remove standard lower strut assembly.*

Shop-Built Aids

Shop-built aids can increase the utility of your sled. Here are a few suggestions.

Wood Backing Blocks

Included with your sled is one wood backing block. It is made of poplar, $1^{11}/_{16}$" (43mm) square × $1^{1}/_{8}$" (29mm) long. You can make more from most soft straight-grained woods; poplar or pine work best. You can make these longer, letting the excess stick out the rear of the sled, or they can be cut to length as needed.

Sled Stops

Sled stops are used whenever the motion of the sled must be restricted. They are secured to the fence using T-slot nuts and 1/4-20 screws. Using a screw with a knob will allow the sled stop to be quickly and easily repositioned.

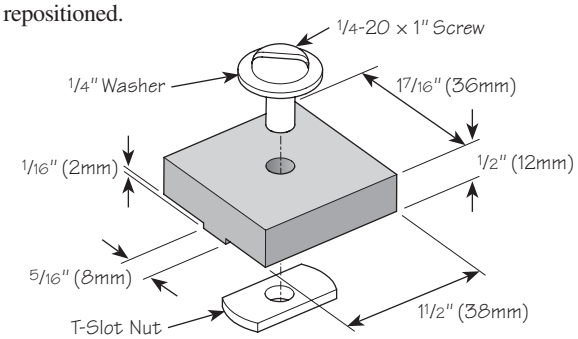


Figure 32: Typical sled stop. *Dimensions given are maximum.*

Gauge/Stop Stick

In lieu of clamping your workpiece to the sled when cross routing, a gauge/stop stick can be used. It may be made as shown below.

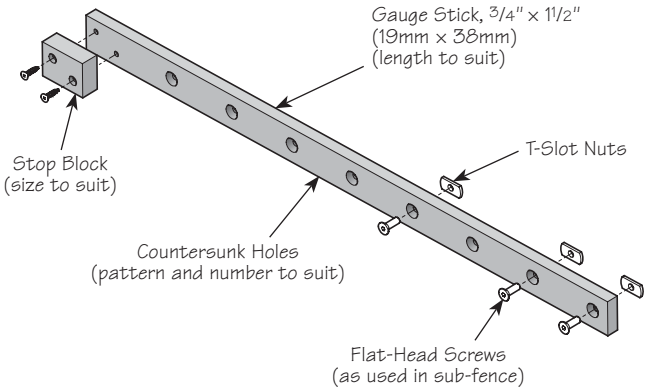


Figure 33: Gauge/stop stick.

Make the stick as long as required to restrain your workpiece. This is essentially a long sub-fence as illustrated in the **Router Fence Instruction Manual**. Affix a stop block to the stick as shown. Attach the stick to the sled using two 1/4-20 × 1" flat-head screws and T-slot nuts. Adjust the position of the stick to rout your workpiece in the desired location, while the end bears against the stop block. Firmly tighten the screws.

Using this gauge/stop stick can also help position several identical workpieces in the exact same location.

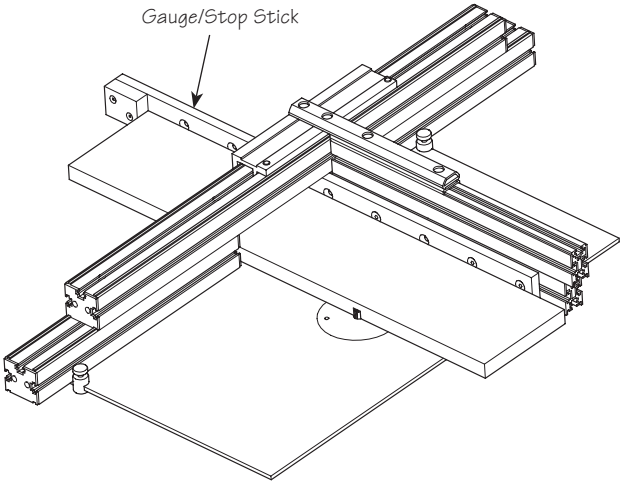


Figure 34: Using a gauge/stop stick to locate the workpiece while cross routing.

Inch/Metric Conversion Chart

Fraction	Millimetre	Decimal Inch	Fraction	Millimetre	Decimal Inch
1/64″	0.40	0.0156	33/64″	13.10	0.5156
1/32″	0.79	0.0313	17/32″	13.49	0.5313
3/64″	1.19	0.0469	35/64″	13.89	0.5469
1/16″	1.59	0.0625	9/16″	14.29	0.5625
5/64″	1.98	0.0781	37/64″	14.68	0.5781
3/32″	2.38	0.0938	19/32″	15.08	0.5938
7/64″	2.78	0.1094	39/64″	15.48	0.6094
1/8″	3.18	0.1250	5/8″	15.88	0.6250
9/64″	3.57	0.1406	41/64″	16.27	0.6406
5/32″	3.97	0.1562	21/32″	16.67	0.6562
11/64″	4.37	0.1719	43/64″	17.07	0.6719
3/16″	4.76	0.1875	11/16″	17.46	0.6875
13/64″	5.16	0.2031	45/64″	17.86	0.7031
7/32″	5.56	0.2188	23/32″	18.26	0.7188
15/64″	5.95	0.2344	47/64″	18.65	0.7344
1/4″	6.35	0.2500	3/4″	19.05	0.7500
17/64″	6.75	0.2656	49/64″	19.45	0.7656
9/32″	7.14	0.2812	25/32″	19.84	0.7812
19/64″	7.54	0.2969	51/64″	20.24	0.7969
5/16″	7.94	0.3125	13/16″	20.64	0.8125
21/64″	8.33	0.3281	53/64″	21.03	0.8281
11/32″	8.73	0.3438	27/32″	21.43	0.8438
23/64″	9.13	0.3594	55/64″	21.83	0.8594
3/8″	9.53	0.3750	7/8″	22.23	0.8750
25/64″	9.92	0.3906	57/64″	22.62	0.8906
13/32″	10.32	0.4062	29/32″	23.02	0.9062
27/64″	10.72	0.4219	59/64″	23.42	0.9219
7/16″	11.11	0.4375	15/16″	23.81	0.9375
29/64″	11.51	0.4531	61/64″	24.21	0.9531
15/32″	11.91	0.4688	31/32″	24.61	0.9688
31/64″	12.30	0.4844	63/64″	25.00	0.9844
1/2″	12.70	0.5000	1″	25.40	1.0000

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