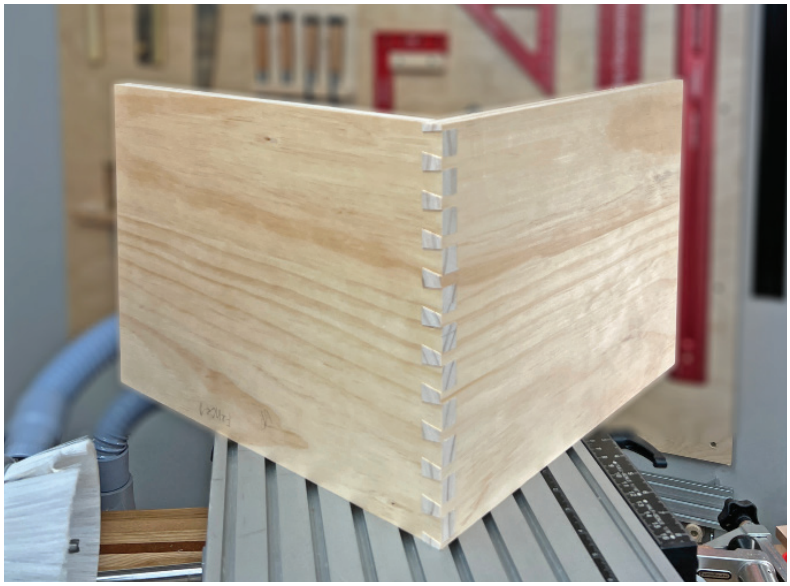
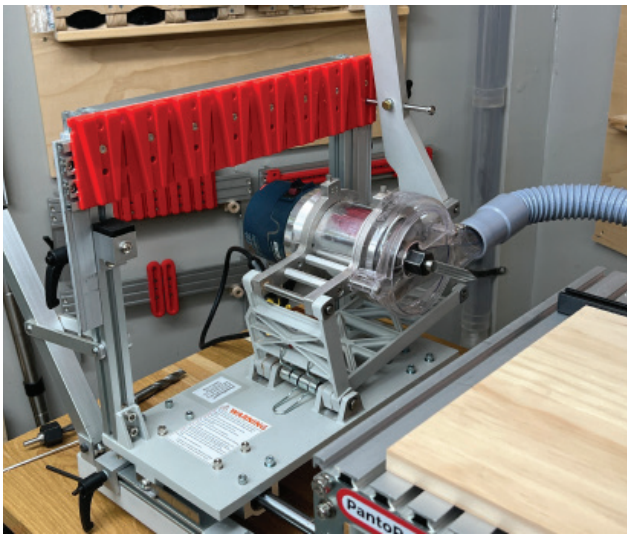
PantoRouter®

TECH TIPS

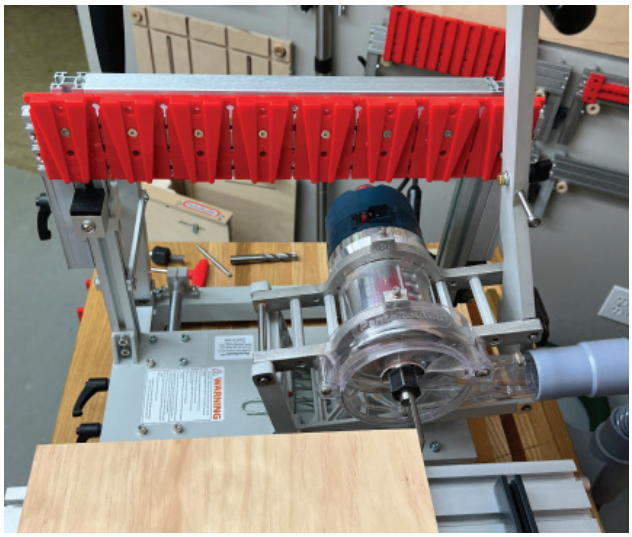
Dovetails on Boards Wider than 8 Inches (200mm) - Fence Indexing Method

The PantoRouter ® has a cutting window of approximately 8” wide by 4” tall (200mm x 100mm). In most furniture making applications this is adequate, however occasionally there is a need to cut joinery on boards wider than 8” (200mm). One of the most common situations is when making large drawer boxes or chests. Once glued, a large drawer with dovetails or box joints will be incredibly strong and last for generations. This step-by-step Tech Tip describes the process of locating, indexing, and cutting dovetails on wide boards.

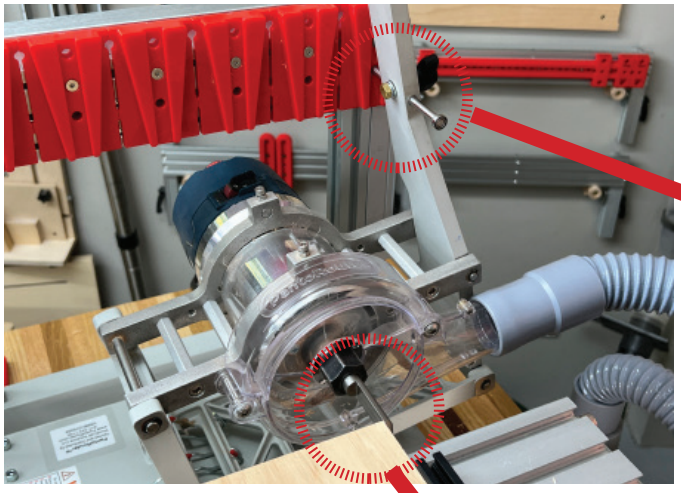


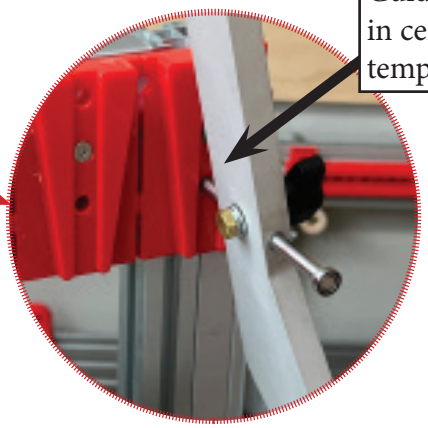


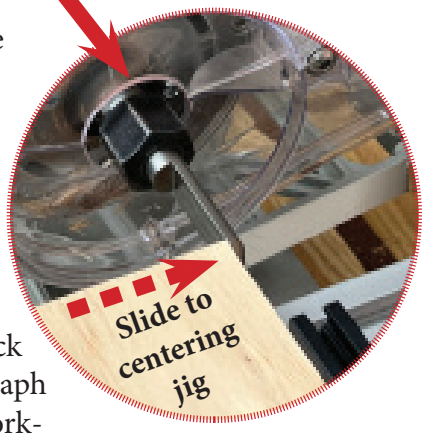
Begin by loading all 8 of the dovetail templates onto the Template Holder to set up a fixed-space dovetail array by pushing them together so each template is contacting the template next to it then tighten the mounting screws. In this example, we’re using the newest version of templates with the points facing down, but the older (points up) version work the same way.

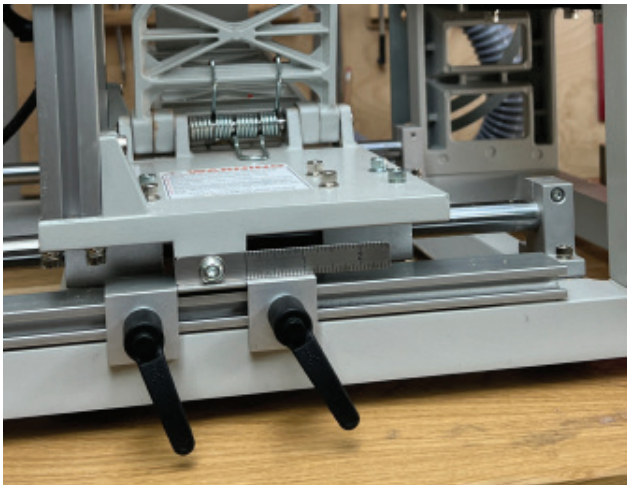


Unplug the router to prevent accidentally turning it on during setup processes. Insert the Split-Shaft Centering Jig into the router collet and tighten. Place a 6mm guide bearing shaft in the pantograph arm and insert the shaft into the centering hole of the template furthest from the operator.

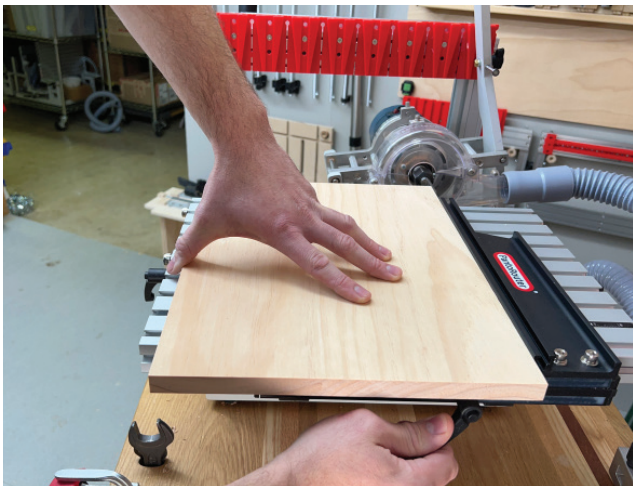




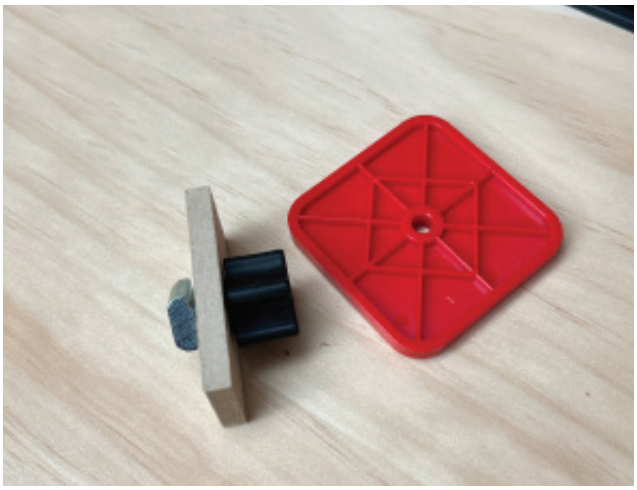




Place the board against the Centering Scale Fence and overhang the table about an inch. Bring the Pantograph forward until the Split-Shaft Centering Jig is past the workpiece but not contacting the table, then lock the front and back depth stops so the pantograph cannot move. Slide the workpiece and fence together until the edge of the board contacts the flat vertical surface of the Split-Shaft Centering Jig, you may need to manually rotate the collet.

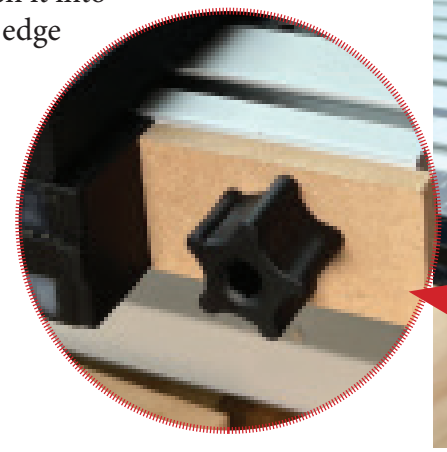


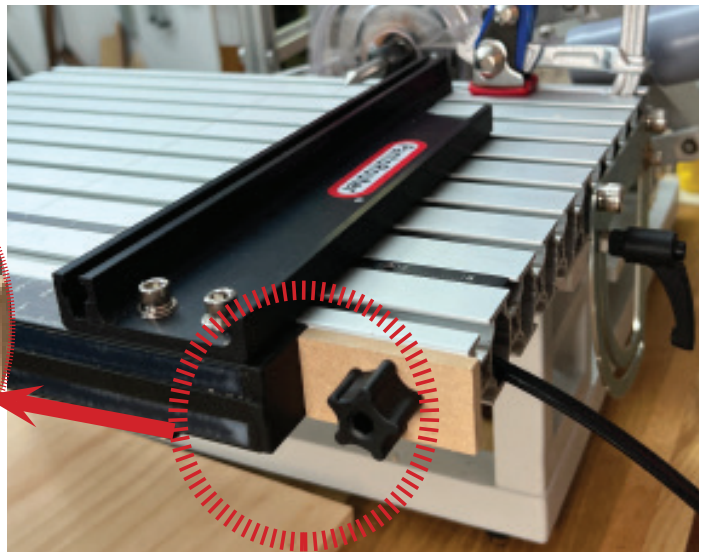
With the workpiece touching the Slit-Shaft Centering Jig, tighten the lever knob of the Centering Scale Fence and double check the edge of the board still contacts the Split-Shaft Centering Jig.

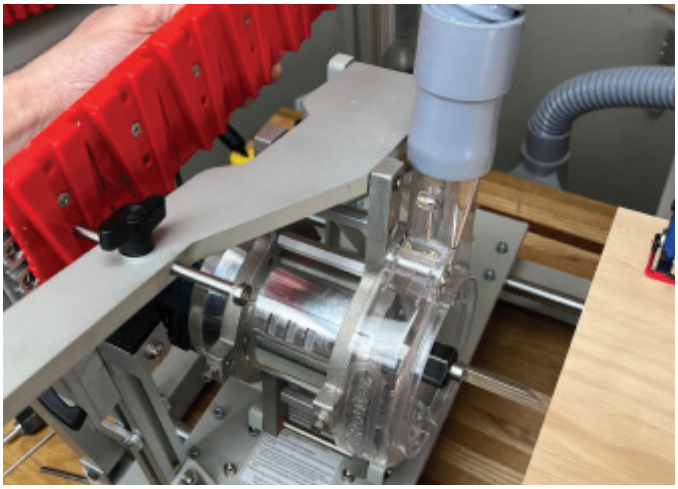


Drill a 1/4" (~6mm) hole in a scrap piece of wood or MDF that measures approximately 1"x2"x1/4" thick. Remove the flower knob and T-nut from a Front Fence Stop and place it through the hole in the scrap piece to make a reference block.

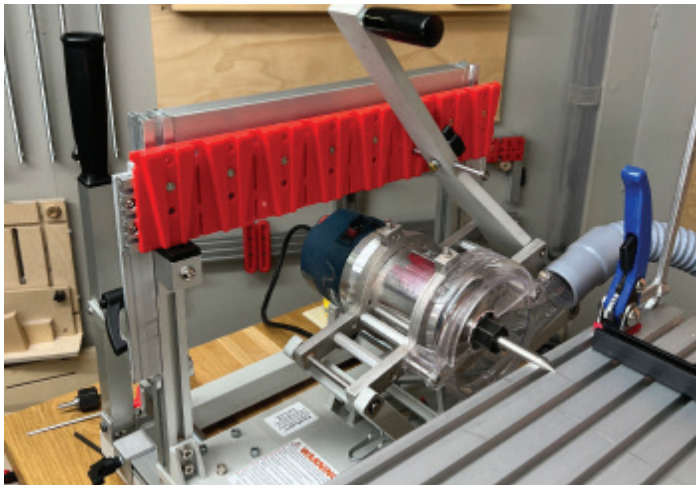
Slide the reference block in the back edge T-slot of the table until it contacts the end of the centering scale fence and tighten it into place. Make sure the top edge of the reference block is lower than the top surface of the table.



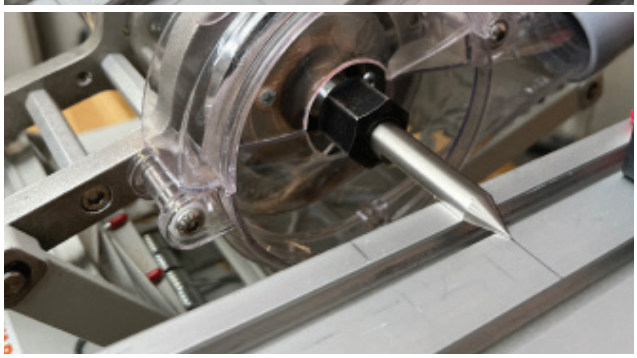




Move the Guide Bearing Shaft to the centering hole of the template on the side closest to the operator. Loosen the Template Holder lever knobs and the back depth stop. With the point of the Split-Shaft Centering Jig barely contacting the front edge of the workpiece, raise and lower the Template Holder to make a vertical scribe mark using the sharp point of the Split-Shaft Centering Jig.

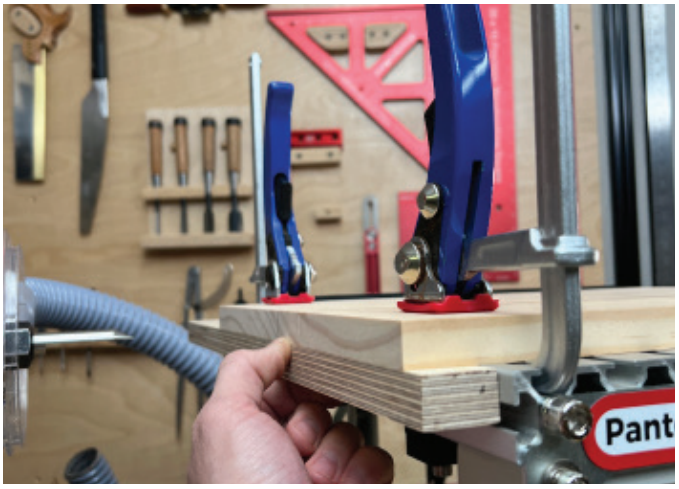


Next, place the Guide Bearing Shaft in the centering hole of the template 6th from the operator and rest the flat face of the Split-Shaft Centering Jig on the aluminum table.

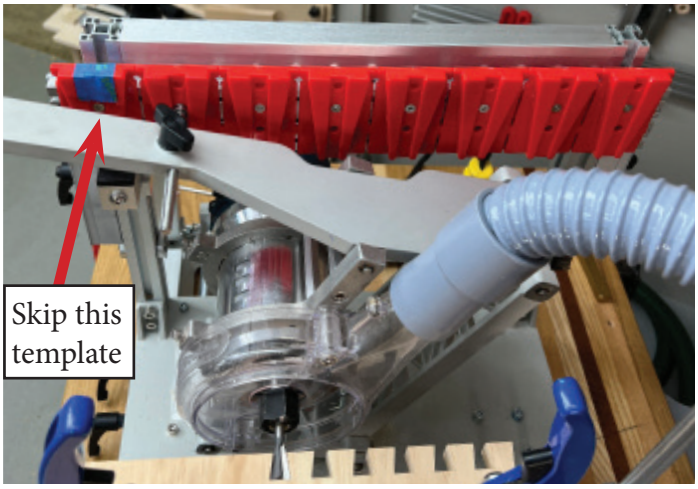


With a sharp pencil, mark the location at the end of the Split-Shaft Centering Jig and use a square referencing off the front of the table to mark a line on the tabletop. This line does not need do be drawn the entire width of the table.

The Scribe line on the front edge of the workpiece and this pencil line on the table will be utilized later in the process.

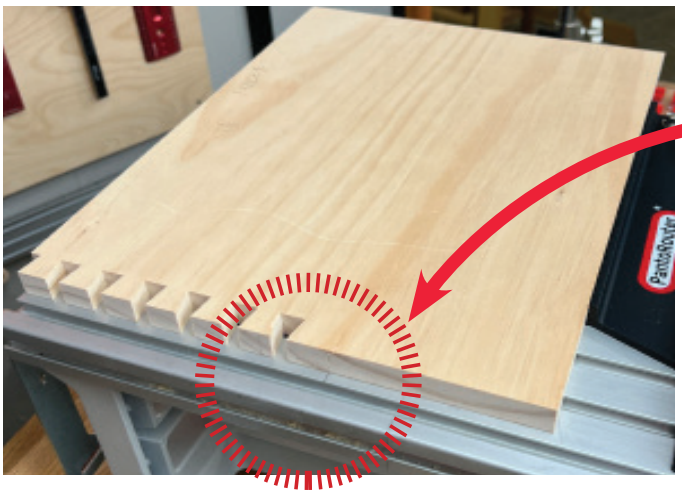


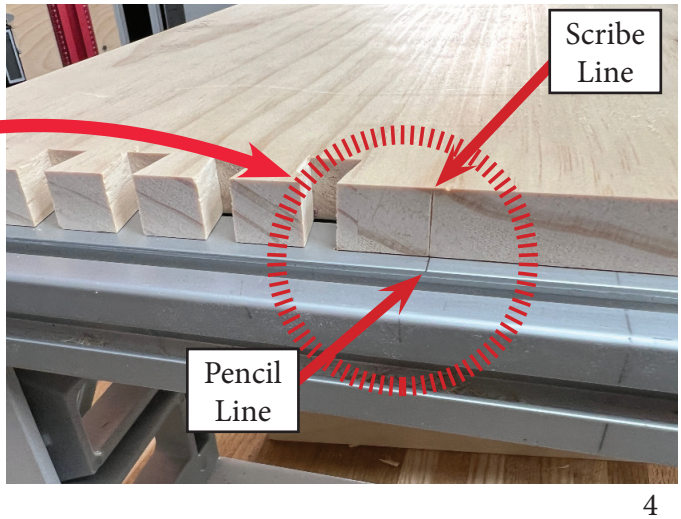
Place the workpiece on the table and against the Centering Scale Fence. Use a scrap piece of wood approximately 1" wide to reference the workpiece overhang past the front of the table. The width is not critical as long as it is greater than the depth of cut but it must be straight with parallel sides. Make sure the workpiece and 1" strip are flush all the way across.



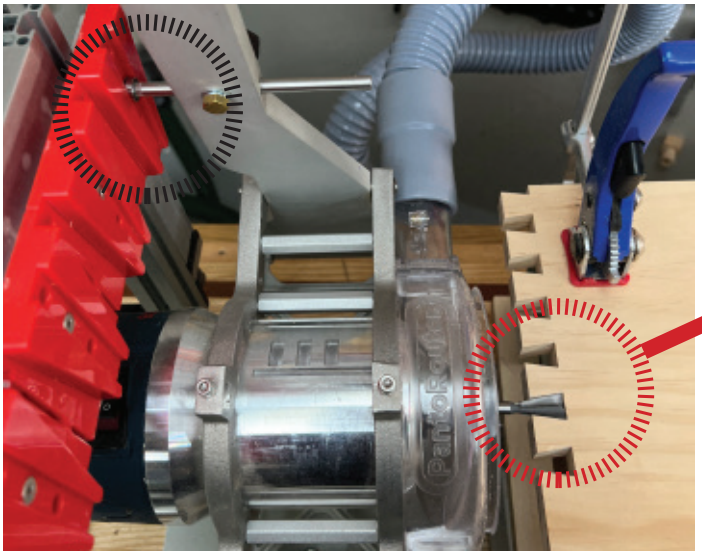
Remove the Split-Shaft Centering Jig from the router and insert the 8° x 1/2" dovetail bit provided with the machine. Set the depth of cut by using the depth ruler or by using the workpiece itself (as described in the dovetail section of the How-To guide). Make sure the Template Holder height is set so the bit clears the top and bottom of the workpiece while the guide bearing is in the vertical slots of the dovetail templates. Cut the tails but do not use the template closest to the operator, that would eliminate the scribe mark made earlier. A piece of tape can be placed on the top of the template to block the slot as a reminder.

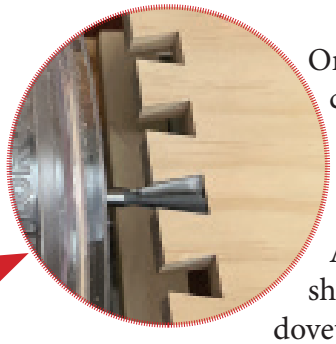
Once all of the "tails boards" have the first section of dovetails cut, slide the fence towards the operator and place the board on the opposite side of the fence. Align the scribe line on the front edge of the work-piece made with the Split-Shaft Centering Jig with the pencil line on the table made earlier. When the two are aligned, lock the Centering Scale Fence in place.





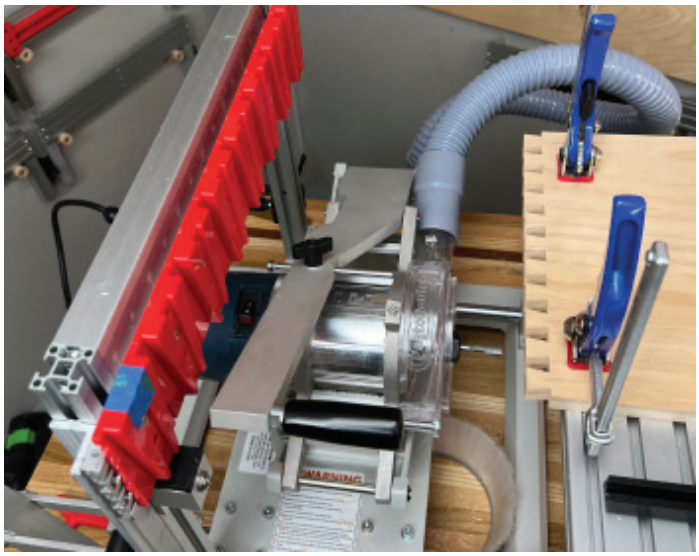
Use the same 1” strip of wood to locate the overhang of the workpiece and clamp it down.





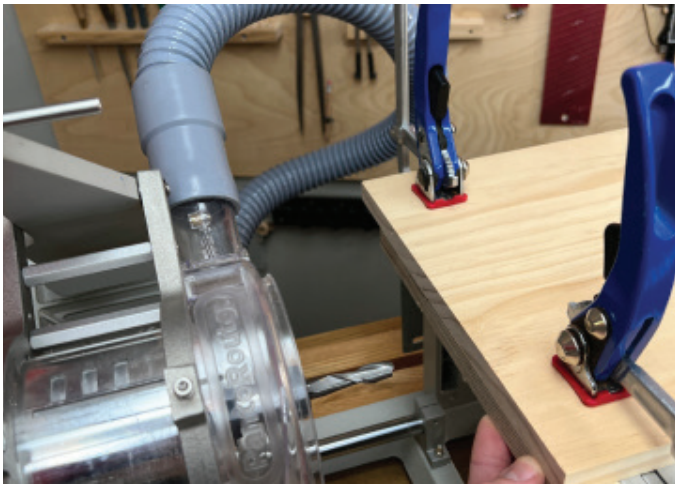
Once the workpiece is clamped down, run the guide bearing in the center slot of the template farthest from the operator. At full plunge depth, it should pass through the dovetail slot that was previously cut. If the bit cannot pass freely through the dovetail slot, it means the board is not indexed properly and will have to be fixed before continuing.

Now the remainder of the tails can be cut on the end of the board. Before changing bits and moving onto cutting the pins, make sure all boards that need tails are cut.



Note:
If you’re using the dovetail templates with the points up (pre-2023), cut a test piece of tails about 6” long and 4” wide so you can test the fit of the pins to the tails while the pins board is still on the table.

The newer templates have the points down so you can test a longer pins board from the top as described in the next steps.

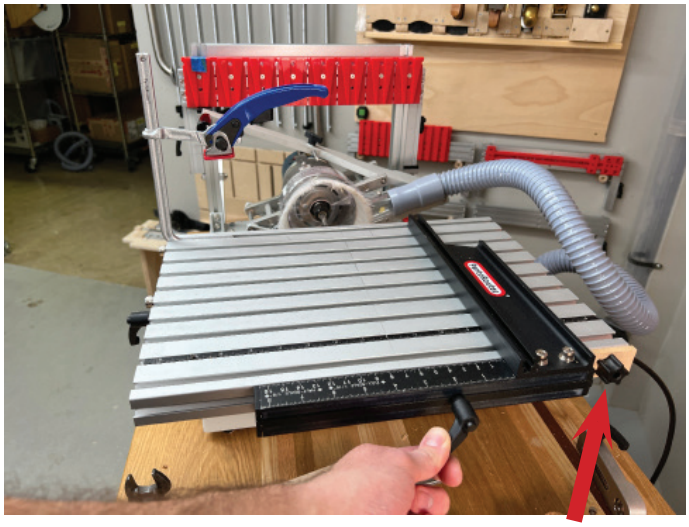


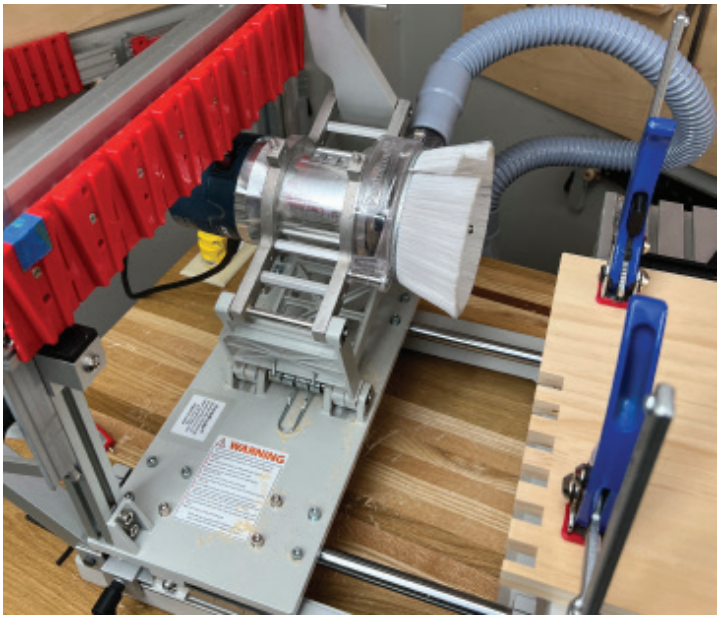
Once all tails are cut, remove the dovetail bit and install a 3/8” spiral bit in the router collet. Locate the “pins board” on the table using the same 1” strip and clamp it down. The Centering Scale Fence should remain in the same position it was in with your last tails board cut.

Cut the pins using the angled sides of the dovetail templates.

Before un-clamping and indexing the workpiece over, test the fit of the joint and adjust the size of the pins as needed by raising the Template Holder using the Template Holder Micro-Adjust. For an in-depth explanation of this process, please refer to the dovetail section of the How-to Guide. The latest version can be downloaded from our website at: https://www.pantorouter.com/getting-started/#how-to-guides

Once the first section of pins has been cut on all “pins boards” and the joint fits as desired, the Centering Scale Fence can be returned to its original location by sliding it back until it contacts the reference block that was setup earlier.





Now that the fit of the pins have been dialed in, the remainder of the pins can be cut with confidence.

Please show us your latest dovetail project as well as any tips or tricks you picked up along the way!

Photos of the beautiful cherry dovetail cabinet below are courtesy of Casey Marwine.
www.caseythemaker.com