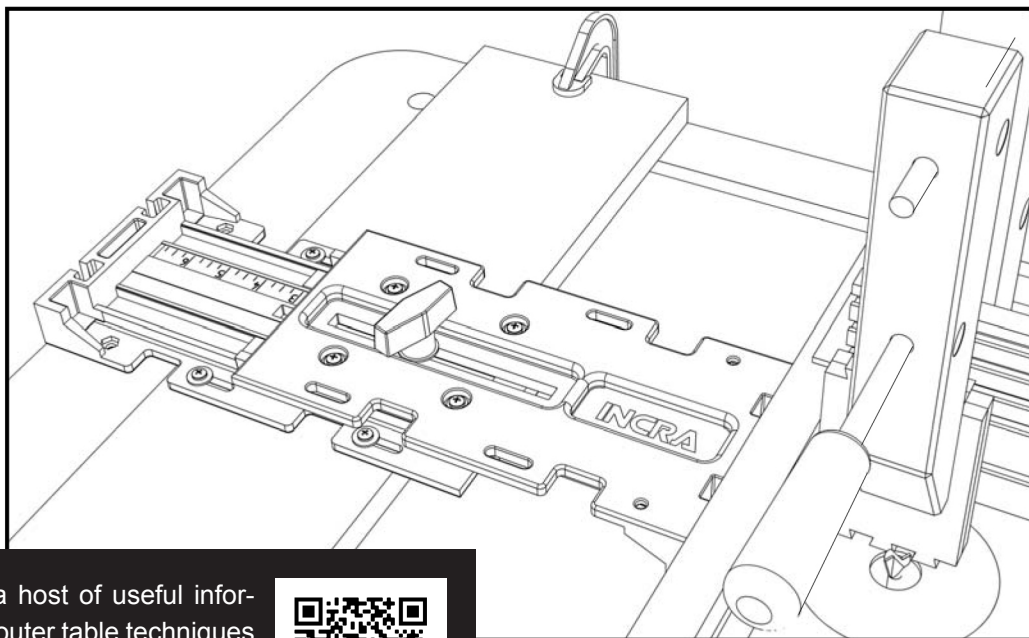


Please read before use and keep it at hand for reference.

Since its first appearance in woodworking shops around the globe many years ago, INCRA Jig has established itself as the finest and most versatile woodworking system available. At the top of its list of features has always been its unparalleled positioning accuracy. As a fence system, INCRA Jig's amazing precision allows exact fence placement to within a few thousandths of an inch, regardless of your skill level. As a joint making machine, these same positioning capabilities permit an endless variety of box joints and all styles of dovetails to be created. And with decorative joints like the exquisite INCRA Double Dovetail (described in the *INCRA Master Reference Guide and Template Library* sold separately), INCRA Jig makes the seemingly impossible quite possible.

This owner's manual is an ideal companion to the online video instructional content at [incra.com](http://incra.com). Please take an hour or so to view this enjoyable video production. You will see and hear in real life, everything that is illustrated and written in this manual, and you will soon be on your way to unleashing the awesome capabilities that the world famous INCRA JIG will put in your shop.



As a bonus, you'll also learn a host of useful information about general purpose router table techniques that you can apply to all your woodworking projects. Just scan this QR code to start watching now →



## SAFETY Important safety instructions for using the INCRA Jig

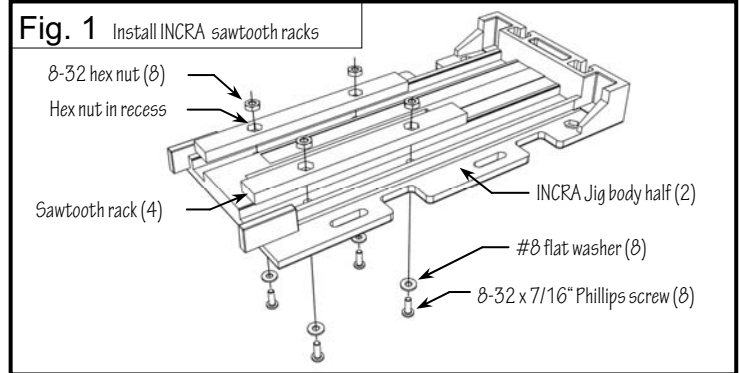
- Before using the INCRA Jig, carefully read and follow all of the instructions and safety information in this manual.
- When using the INCRA Jig in conjunction with any other tool, first read and follow all instructions and safety information in that tool's owner's manual.
- When the INCRA Jig is mounted to a wooden base or table surface, make sure that all four mounting screws are securely tightened and the INCRA Jig is firmly held in place.
- When using the INCRA Jig with a wooden base panel, always make sure that the base is securely clamped, screwed or otherwise fastened to the work surface before making a cut.
- Always turn off the power and make sure that the bit or blade is fully stationary before moving the INCRA Jig to any new setting.
- Always keep both hands behind the fence when moving the INCRA Jig to any new setting.
- Before making a cut, always make sure that the clamping knob is fully tightened and the jig is securely locked in place.
- When using the INCRA Jig with other tools, make sure that all safety guards and other safety equipment supplied by the manufacturer of that tool are securely in place and functional. Never let the INCRA Jig interfere with another tool's safety equipment.
- Use appropriate safety devices. Keep hands clear of the bit or blade. Always use a push stick, rubber soled push block, or other safety devices to keep your hands safely away from the cutting tool.
- Wear safety glasses, hearing protection and a dust mask, and follow all normal shop safety practices.

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# INCRA Jig Assembly

## Step 1. Attach sawtooth positioning racks.

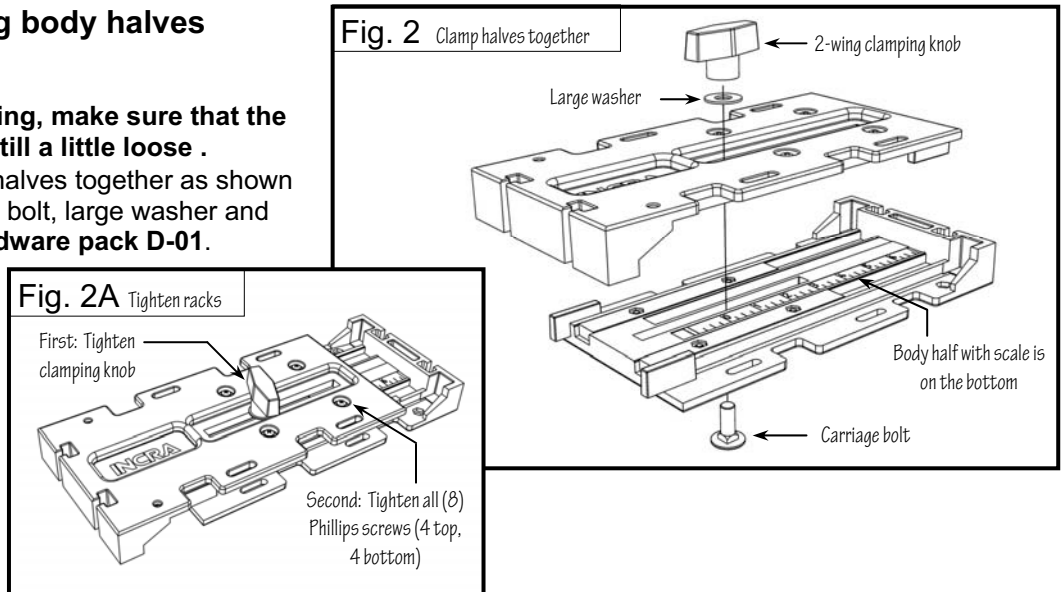
Begin by assembling the (4) INCRA sawtooth racks to the (2) INCRA Jig body halves. Place a rack into one of the receiving grooves and align the mounting holes. Now place the 8-32 hex nuts from **hardware pack D-01** into the hex recesses on the rack and loosely fasten using the 8-32 Phillips screws with washers, **Fig. 1**. Repeat for all of the remaining racks. For now, finger tighten only. The racks should still be loose enough to shift slightly back and forth.



## Step 2. Clamp INCRA Jig body halves together.

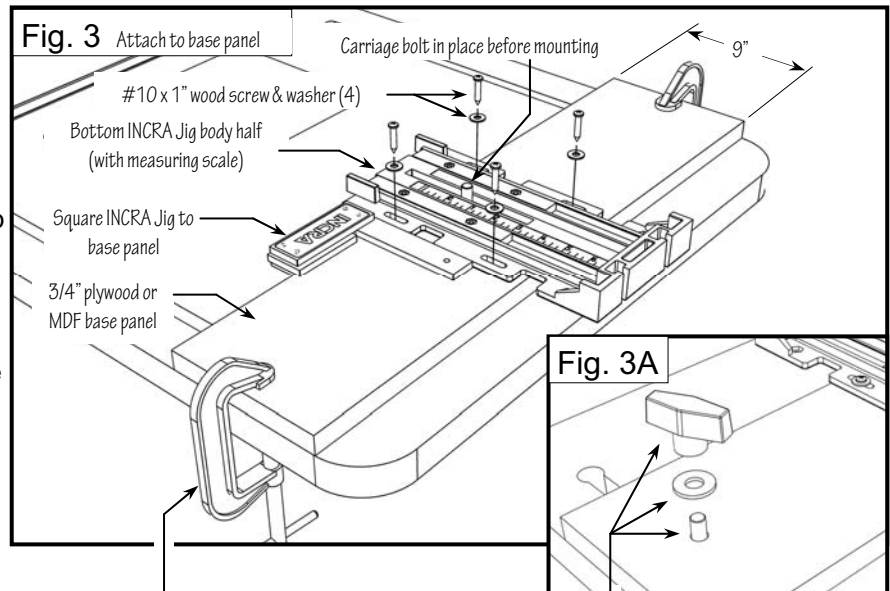
**IMPORTANT:** Before proceeding, make sure that the racks installed in Step 1 are still a little loose. Place the two INCRA Jig body halves together as shown in **Fig. 2** and install the carriage bolt, large washer and 2-wing clamping knob from **hardware pack D-01**.

**IMPORTANT:** The body half with the scale should be on the bottom. Set the top half to a position of about 5 inches (not critical) as indicated on the bottom scale, then tighten the clamping knob. Now securely tighten all (8) Phillips screws, **Fig 2A**. This procedure aligns the racks automatically and perfectly.



## Step 3. Attach INCRA Jig to base panel.

To attach the INCRA Jig to your router table, you'll need a piece of 3/4" thick by 9" wide plywood or MDF that's long enough to span the width of your router table. Remove the top half of your INCRA Jig and center the bottom half, scale side up on the panel. (Be sure the carriage bolt is properly installed from underneath as shown.) Center and square the INCRA Jig on the panel, then attach it with the #10 x 1" wood screws with washers included in **hardware pack D-02**. Now replace the top half of the INCRA Jig along with the washer and clamping knob. Secure the base to your router table with a pair of C-clamps as shown in **Fig. 3**, or if your router table is "INCRA-ready", with slotted holes, you can attach the base panel with user provided T-bolts, washers and clamping knobs, **Fig. 3A**. Just drill holes in the base panel to align with your router table slots.

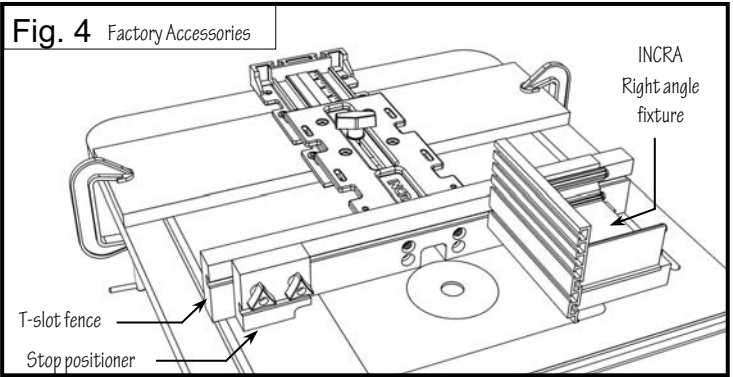
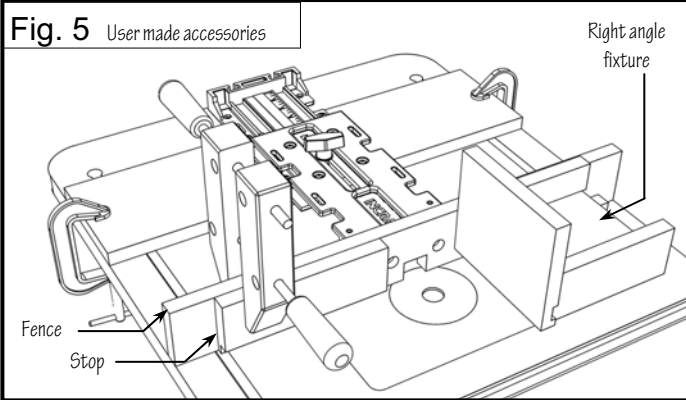


Use C-clamps to attach a 3/4" thick by 9" wide plywood or MDF base panel to your router table...

... or, if your router table is "INCRA-ready" with built-in mounting slots, you can attach the base panel with T-bolts, washers and knobs for greater ease of use

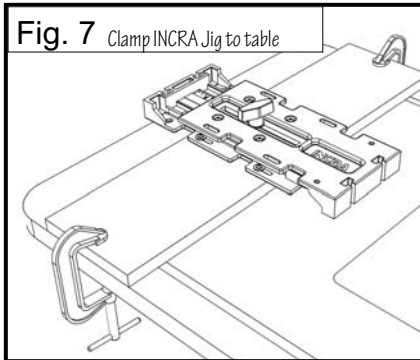
# User Made Accessories - Fence

**Note:** If you have purchased the factory INCRA Fence System shown in **Fig. 4** (recommended), use the instructions included with that product to assemble and attach to your INCRA Jig. Follow the instructions below if you would prefer to make your own, **Fig. 5**.



## Making and attaching your fence.

Begin by making the fence as dimensioned in **Fig 6**. Use a straight piece of 3/4" MDF, hardwood or plywood. Layout the position for the notch, then cut the waste away with multiple side-by-side passes at the table saw using a miter gauge to guide the material, **Fig. 6A**.



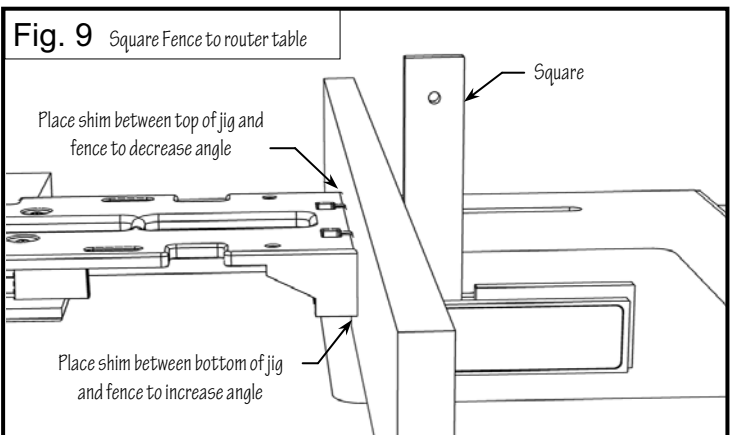
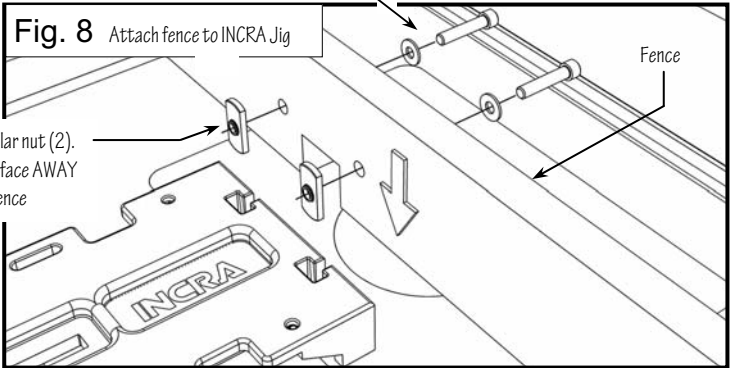
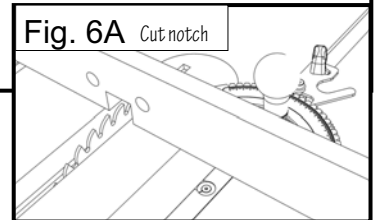
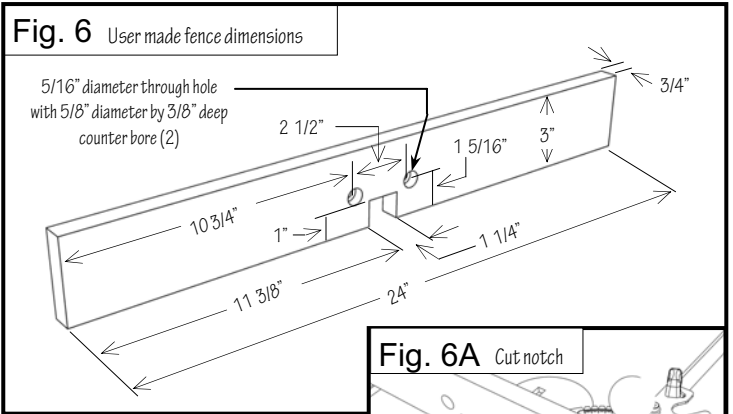
### IMPORTANT:

Before attaching the fence, the INCRA Jig must first be securely mounted to a 3/4" wooden base panel and the base panel must be clamped to your router table. Also make sure that the INCRA Jig's clamping knob is securely tightened, **Fig. 3 & Fig. 7**.

Attach the fence to your INCRA Jig front end using the 1/4-20 x 7/8" socket head fasteners with washers and rectangular nuts from **hardware pack D-02**.

**CAUTION: The raised rim on the two rectangular nuts MUST FACE AWAY from the fence as shown in Fig. 8.** Now slide the rectangular nuts into the T-slots located at the front end of the INCRA Jig's top body half and tighten the fasteners to secure.

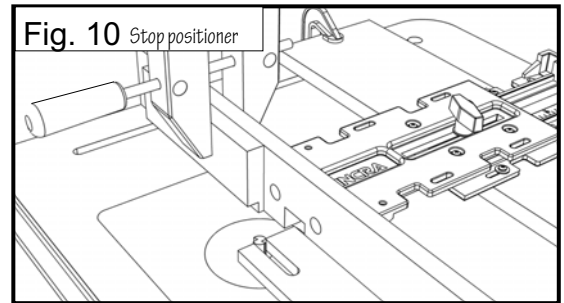
After attaching your fence, check for squareness with your router table top. If any adjustment is necessary, loosen the mounting screws and insert a paper or plastic shim between the INCRA Jig and the rear of the fence, **Fig. 9**. A shim placed *below* the fasteners will increase the angle between the fence and table; a shim placed *above* the fasteners will decrease the angle. Tighten the fasteners to secure the fence.



# User Made Accessories - Stop

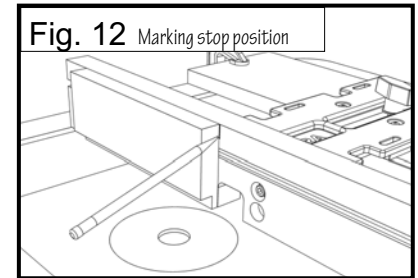
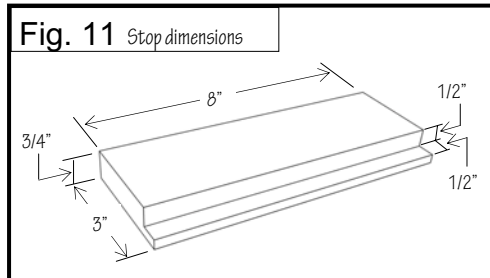
## Making a Stop Positioner

Your stop positioner is useful for limiting the length of cuts made at the router table. Just position the stop and secure it to the fence with a wooden hand screw clamp, **Fig. 10**. This is perfect for the stopped cuts required for the dovetail pin cuts described in the joinery section of this manual.

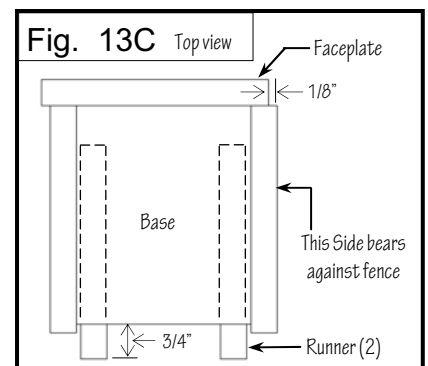
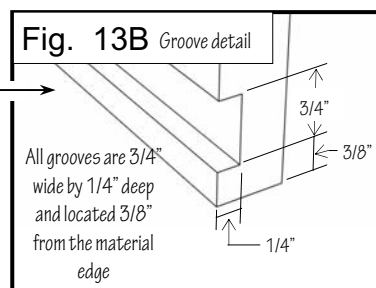
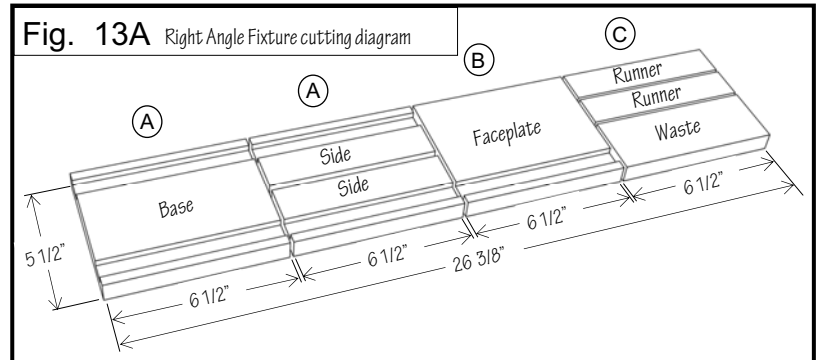
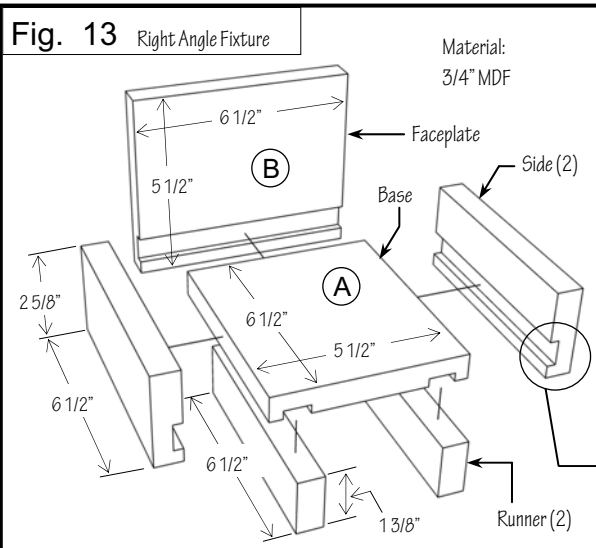


The simple design shown in **Fig. 11** includes a rabbeted area that allows moving the stop over the top of the cutter for very short stopped cuts. 3/4" MDF will make a good stop material.

**TIP:** When making fine adjustments relative to an initial stop position, place a mark on the front face of the fence along the leading edge of the stop positioner, **Fig. 12**. Now when you loosen the clamp and slide the stop you can easily gauge how much you have moved the positioner.



# User Made Accessories - Right Angle Fixture

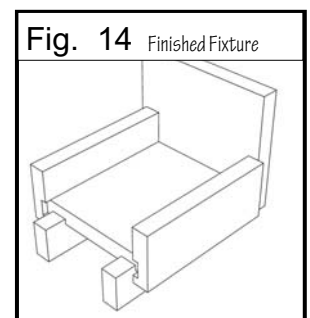


## Making a Right Angle Fixture

This simple Right Angle Fixture is an important accessory for joinery. Use it to guide your material for the vertical cuts required for dovetails and box joints as shown beginning on **page 7**.

To make the design shown in **Figs. 13 & 14**, begin with (4) identical pieces of 3/4" MDF, cut to 5 1/2" x 6 1/2". Cut (2) pieces "A", (1) piece "B" and (1) piece "C" as shown in **Fig. 13A**. To cut ALL the grooves as shown in **Fig. 13B**, set a 3/4" diameter router bit to 1/4" depth of cut, and set the fence-to-bit distance at 3/8". Check the fit of the material in the grooves, then fine tune as necessary. Now, rip (1) piece "A" to yield (2) 2 5/8" wide Side pieces. Then rip the final uncut blank "C" to yield the (2) 1 3/8" Runners.

To assemble, first glue the (2) Runners to the Base, allowing 3/4" of overhang as shown in **Fig. 13C**. Now glue the Faceplate and the (2) Sides to the Base. Make sure that the Faceplate is offset 1/8" from the fence Side piece as shown in **Fig. 13C**, and that the Faceplate and the fence Side piece are square to your table top.

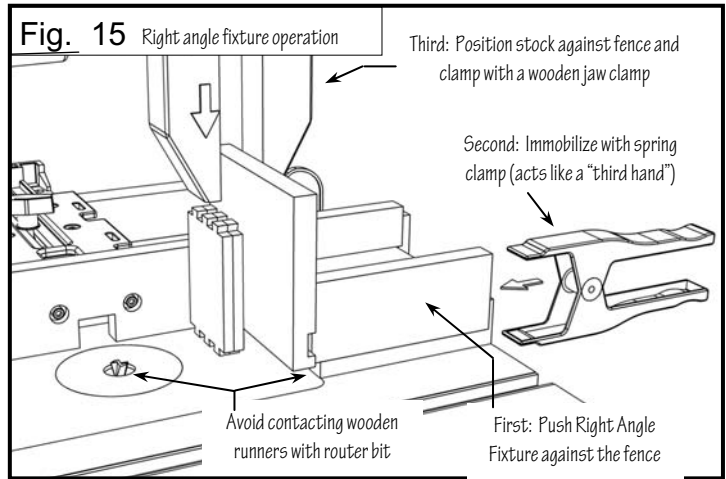


## Right angle fixture operation.

Before clamping a workpiece to your Right Angle Fixture, always press the fixture against your fence, then immobilize by clamping it to the table with a spring clamp, **Fig. 15**. When positioning the workpiece against the faceplate, make sure that the edges of the boards are against the fence and the ends are contacting the table surface, then clamp in place using a wooden handscrew clamp.

**CAUTION:** Do not allow any part of your hands to hang below the body of the Right Angle Fixture. Always keep hands well away from the bit.

**TIP:** To avoid contacting the wooden runners with the router bit, clamp your stop to the outfeed end of the fence to stop the forward travel before contact.



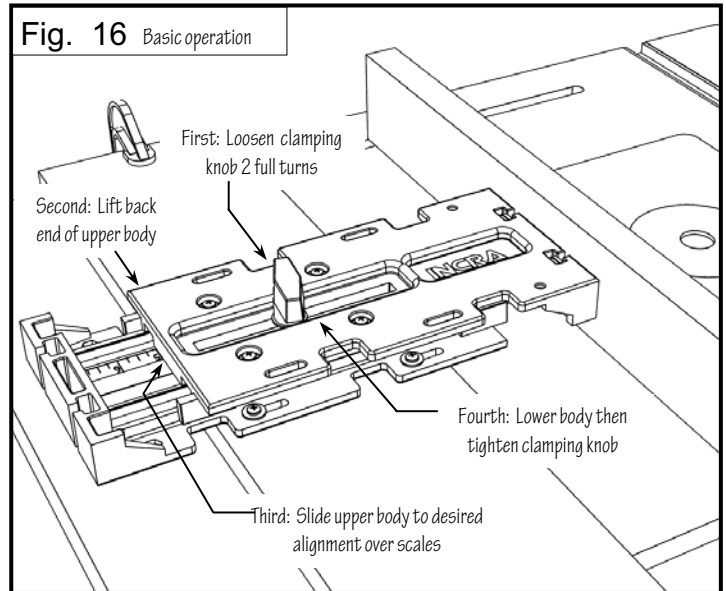
**TIP:** A wooden jaw clamp works BEST! One-handed clamps typically don't have enough holding power, and a C-clamp can mar your work, and can be difficult to handle.

## Basic Operation and Calibration

**Note:** All subsequent illustrations reflect use of the factory accessories.

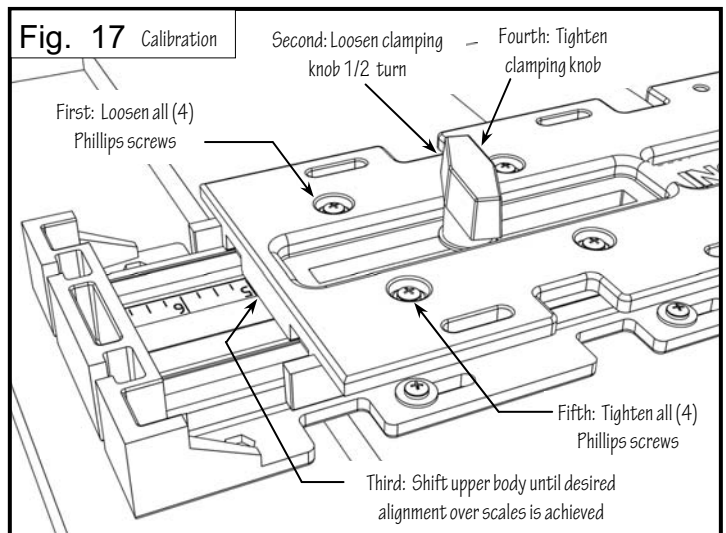
### Basic INCRA Jig operation

To move your INCRA Jig's fence from one scale setting to another, loosen the clamping knob two full turns and lift the rear of the INCRA Jig's upper body. This disengages the saw-toothed racks and allows you to slide the Jig forward. Slide to align the rear of the upper body over the desired mark on the scale, then lower the upper body to re-engage the racks. You should be able to shift the upper body from side to side easily when the racks are engaged properly. Tighten the clamping knob, **Fig 16**.



### INCRA Jig calibration

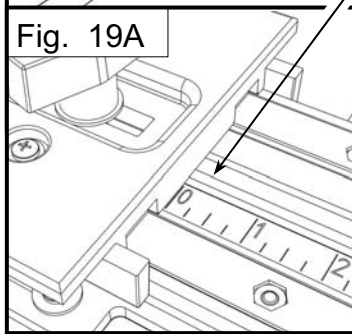
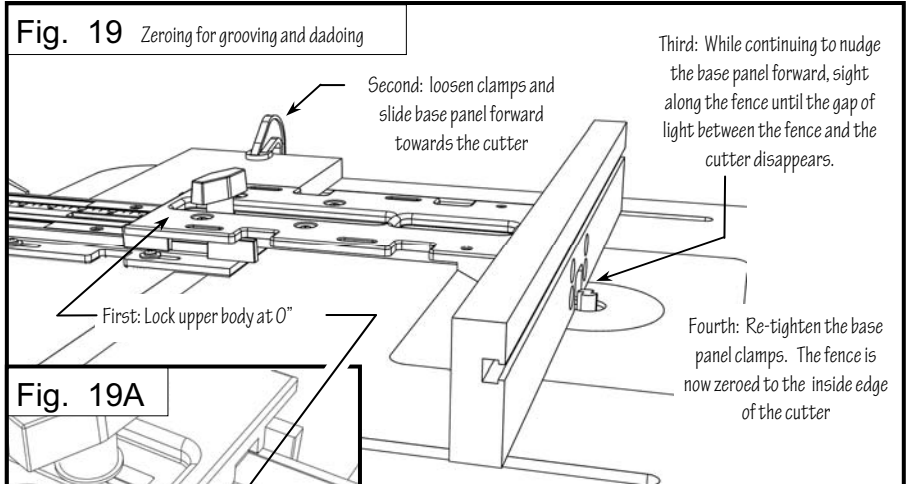
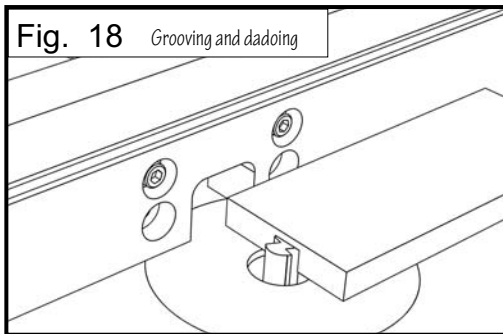
Initially, the alignment between the scale and body may appear slightly off, but the one-time-only adjustment is easy. Loosen the four Phillips head screws that secure the upper racks, then loosen the clamping knob about one-half turn. Now shift the upper body slightly forward or backward until the rear of the upper body aligns clearly over any scale mark. Tighten the clamping knob, then secure the racks by re-tightening all four Phillips head screws, **Fig. 17**. From now on, the scale will align perfectly at all INCRA Jig settings.



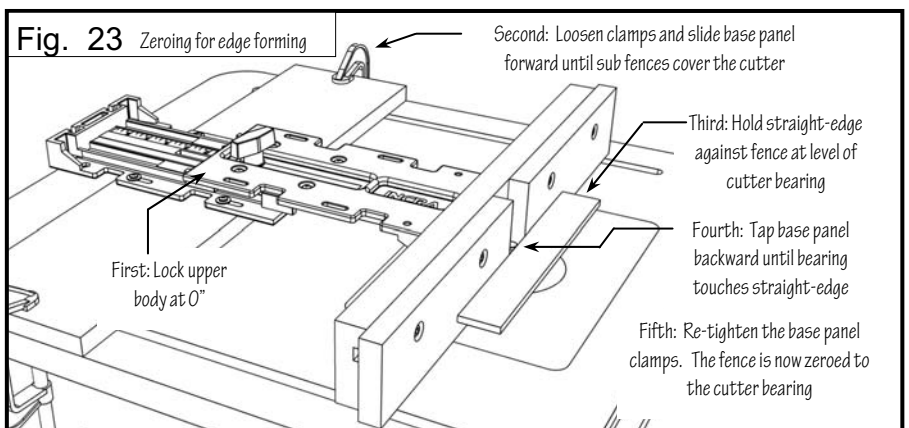
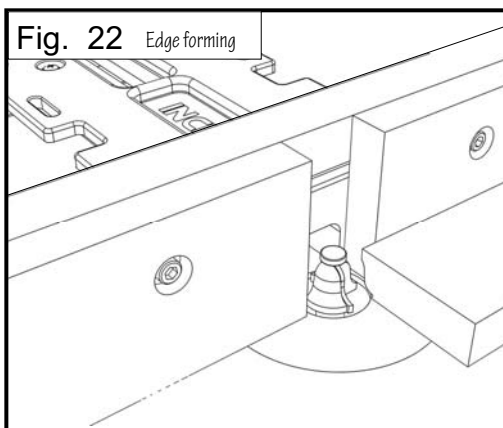
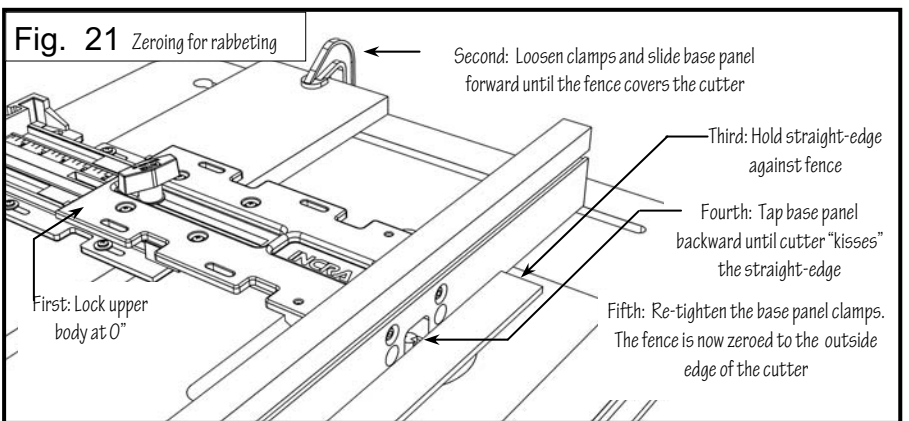
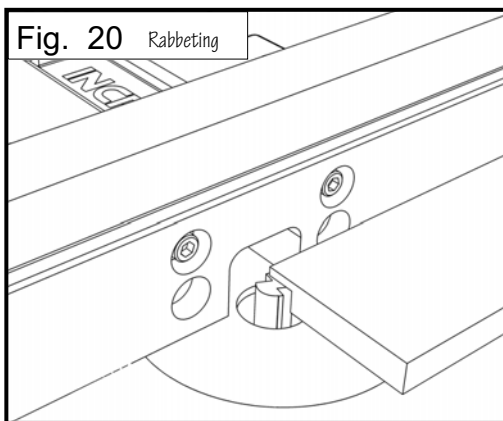
# Applications - Common Cuts

## Grooving, dadoing, rabbeting and edge forming.

Box joints, dovetails and the exotic INCRA Double and Double-Double joinery may be the icing on the cake, but everyday cutting applications such as grooving, dadoing, rabbeting and edge forming are the real bread and butter benefits of owning an INCRA Jig. Each of these common cutting operations requires a different way of calibrating the fence to the cutter. For grooving and dadoing, you will typically zero the fence to the **INSIDE** edge of the router bit. For rabbeting, you will zero the fence to the **OUTSIDE** edge of the bit. And for edge forming, you will often add a pair of sub fences to accommodate the larger diameter of most edge forming bits. A quick look at the illustrations below will show how you can quickly and easily calibrate your INCRA Jig for each of these types of cuts.



When setting up for most common cutting operations, the first step is usually to set the INCRA Jig to a reading of zero, as shown in Fig. 19A. The base panel is then moved forward until the fence is "zeroed" to the desired edge of the bit.



# Applications - Joinery

**Joinery** represents one of the most exciting applications for your new INCRA Jig. Just by applying a little technique to the extreme accuracy built into your INCRA Jig, you'll soon be able to add joinery for box and drawer making to your list of shop skills. The two included templates will allow you to produce 3/8" box joints and 1/2" Sliding, Half Blind, Through and Corner Post Dovetails. The included variations technique will allow you to produce dozens of pattern variations on each of the four joint types.

We'll begin with a look at two simple, but important setup operations that must take place before using your INCRA Jig for joint making at the router table. They are:

1. **Setting the router bit depth of cut.**
2. **Centering the bit on your workpiece and installing the template.**

## Set the router bit depth of cut for Box Joints

After installing the appropriate diameter straight bit for the template pattern selected (3/8" for the included template), simply raise or lower the bit to set the depth of cut at slightly greater than the thickness of the stock you will be cutting. **See Fig. 24.**

**TIP:** When making box joints, use a stock thickness equal to the diameter of the straight bit used to cut the joint.

## Set the router bit depth of cut for Dovetails

As with any dovetail jig, the depth of cut of your dovetail bit will determine whether your joint is too loose, too tight, or just right. Just a little practice using the following steps will ensure that your dovetail joints will always fit perfectly.

Install the dovetail bit recommended for your template selection and adjust the bit height to the approximate depth of cut suggested under the joint diagram for that cutter, (1/4" for the 1/2"-14° bit or 3/8" for the 1/2"-10° bit.) Set the INCRA Jig to zero on the scale and tighten the clamping knob. Then loosen the base panel clamps and slide the unit forward until the fence covers about half of the bit, then re-tighten the clamps, **Fig. 25.**

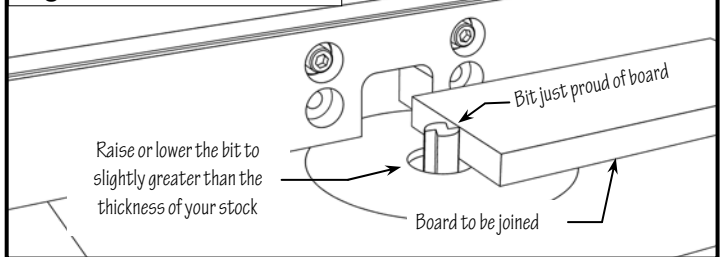
## Test cuts for setting the depth of cut

Clamp two pieces of square cut stock to your Right Angle Fixture and make a cut at the zero setting. Move the fence back to a scale reading equal to the "**Spacing to Set Depth of Cut**" listed under the diagram for the selected template (7/8" for the included template) and tighten the clamping knob. Now, make a second cut on your stock as shown in **Fig. 26.**

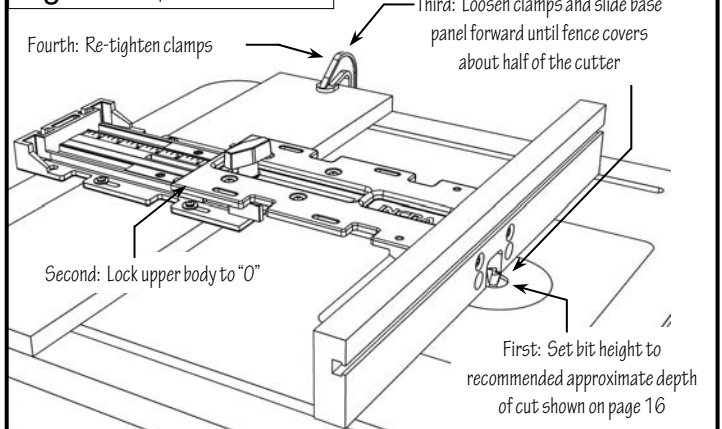
For even more variety, including **Double Dovetails and Double-Double Box Joints**, the optional **Master Reference Guide and Template Library** contains a large selection of new joinery templates. While designed for the larger 16" Ultra and LS Positioner models, the templates can be cut to length to fit your New INCRA Jig to provide an impressive array of styles and joint types for your projects.



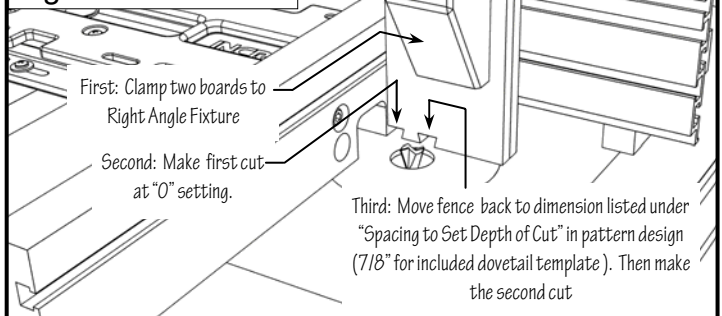
**Fig. 24** Depth of cut - Box Joints



**Fig. 25** Depth of cut - Dovetails



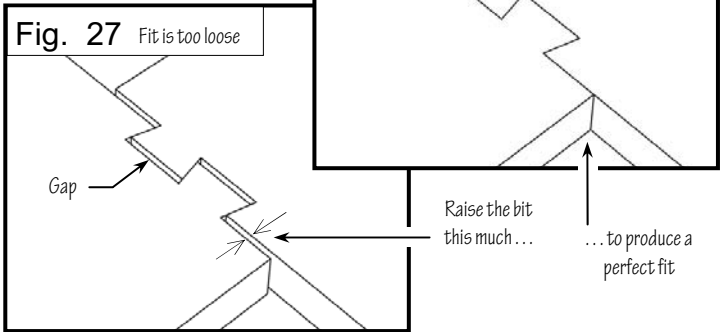
**Fig. 26** Dovetail test cuts



Unclamp the two boards and test the fit by joining them as shown in **Fig. 27**. As with any dovetail jig, a little trial and error is needed to achieve a snug fitting joint. To tighten the fit, raise the bit up slightly; to loosen the fit, lower the bit slightly. Just remember this phrase: **“Heighten to tighten, lower to loosen”**. After adjusting the bit height, make a new set of trial cuts on a fresh uncut corner of the boards. After a few adjustments and trial cuts, you’ll have a perfect fit.

**Tip:** When the fit is too loose, the trial cuts provide a gauge to let you know how much to raise the bit. Just join the trial pieces end to end and gently pull the boards to wedge the dovetails apart, **Fig. 27**. The gap that appears is equal to the distance you need to raise your dovetail bit to achieve a tight fit, **Fig. 28**.

**Heighten to tighten  
Or  
Lower to loosen**

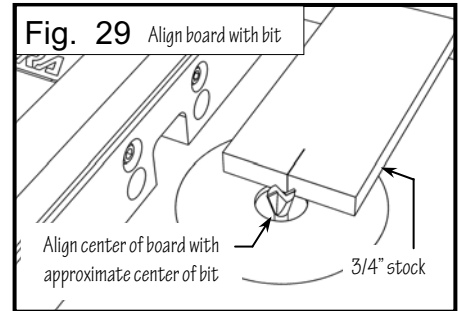


## Centering the router bit on your workpiece

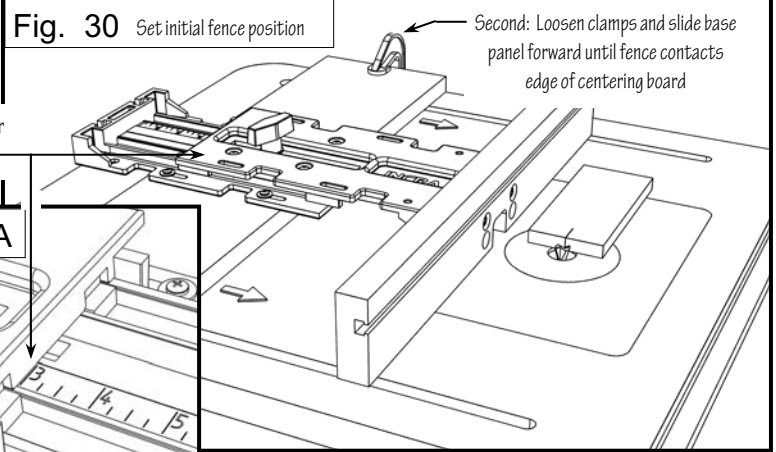
### Rout a test groove

**NOTE: The following instructions apply to Dovetails AND Box Joints.**

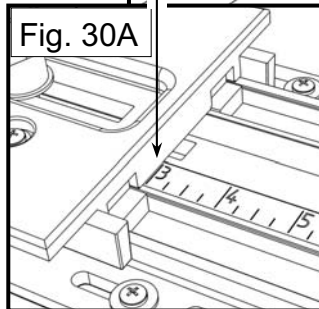
After setting your router bit depth of cut, you will position your INCRA Jig and install the joinery template. This is accomplished through a setup operation called “centering”. Centering locates your INCRA Jig so that the router bit is aligned with the center of the stock width you select. Once you find the center, install the joinery template and you’ll be ready to cut a perfect joint. The simple steps to follow should always be used when setting up for joint making.



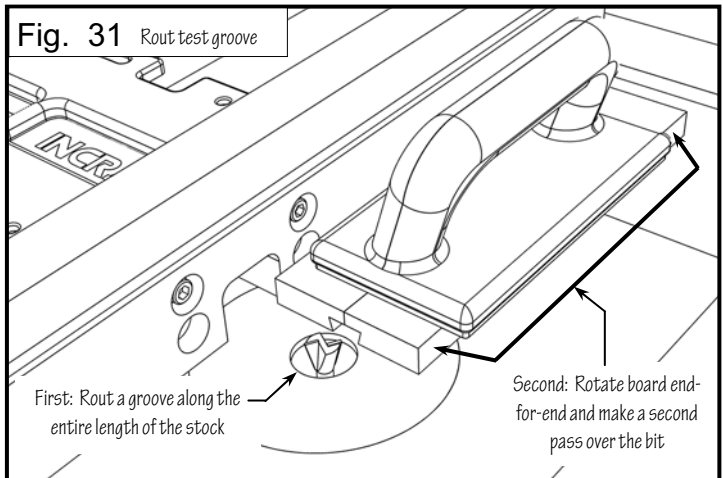
Begin by cutting a piece of 3/4" thick stock to the same width as the boards you wish to join later on. Mark the center of this board's width on one end and place the board face down on the router table with the center of the board aligned with the approximate center of the bit, **Fig. 29**.



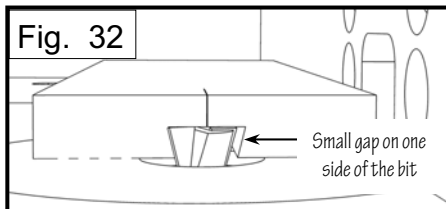
Set your INCRA Jig to 3" on the scale and tighten the clamping knob. Then loosen the clamps that secure the base panel, and slide it forward until the fence contacts the edge of the board. Make sure the center mark on the board is still aligned with the approximate center of the bit, then re-tighten the clamps, **Figs. 30 and 30A**.



Turn the router on, and using a good rubber soled push block, cut a groove along the entire length of the board, **Fig. 31**. Now turn the stock end for end and make a second pass over the router bit. The second pass should widen the groove slightly (unless you are already perfectly centered). Make sure you have turned the stock end for end before making the second pass. (This places the center mark at the back of the board.)



With the router off, turn the cutter to it's widest profile. Slide the test board against the fence to rest just over the cutter. There should be a small gap between the edge of the bit and one side of the groove, **Fig. 32**.



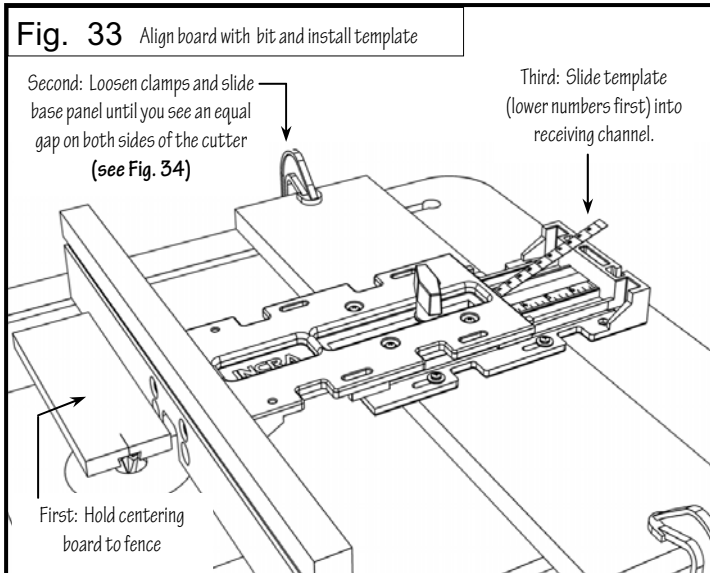


## Fine-tune fence position and install template

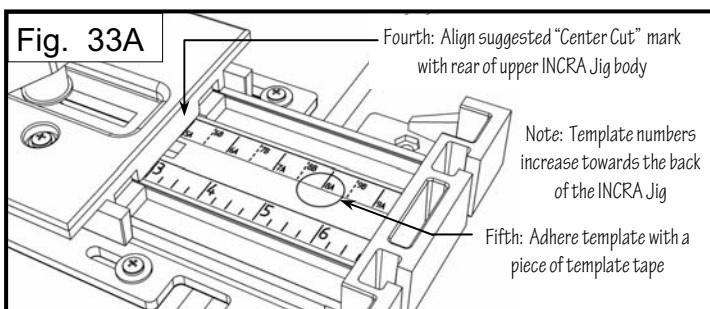
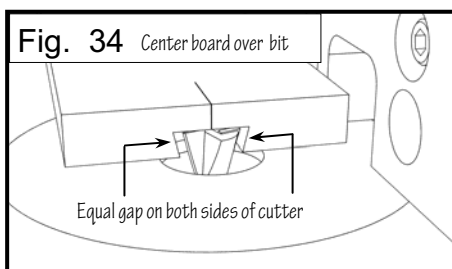
To center the router bit on the test board, loosen the clamps that secure the base panel to your router table. As you hold the board against the fence, tap the base until you see an equal gap on both sides of the cutter, **Figs. 33 & 34**. If your test piece is thick enough, you can flip it over and repeat the test cuts to confirm that the cutter is centered on the board. Once you are familiar with the process, one set of test cuts should do it.

Now that you have found the center of your board, you can install the joinery template. Place a piece of template tape to overlap the right side of the template near the end. Slide the template into the receiving slot and align the mark representing the suggested center cut with the end of the INCRA Jig's upper body. You'll find the suggested center cut listed under the diagram of each template pattern on **page 16**. Hold the template in place as you press the template tape to the lower body, **Detail 33A**.

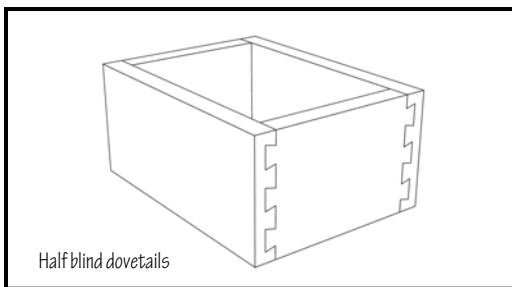
**TIP:** Common cellophane tape works great too.



Now, let's do some joinery.



## Half Blind Dovetails



### Half Blind Dovetails

The easiest of the dovetail joints, half blind dovetails, add strength and beauty to your projects. They are also the most versatile of the many joints you can cut with your INCRA Jig. In fact, many of the decorative joints we've designed over the years are just variations on the half blind technique you are about to learn. Once you've mastered the steps below, you'll find these decorative joints (the Corner Post Dovetail on **page 11** and the Double Dovetail in the optional **Master Reference Guide and Template Library**) quite easy to complete.

### Install the template

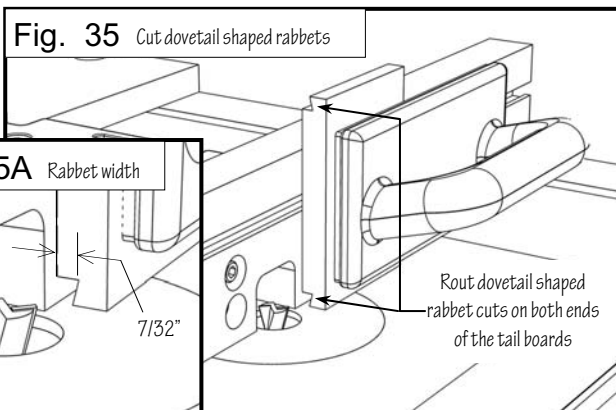
After centering as shown on **Pages 8 & 9**, select and install the **Dovetail Template**. (Refer to **Page 16** and **Figs. 33 & 33A**).

### Determine joint layout (pins or tails?)

The first step in making ANY dovetail, whether it be Half Blind, Sliding, Through or Corner Post is to decide which half of the joint will be the pins and which half will be the tails. Refer to the instructions in **Figs. 61 and 62** on **page 14** to determine which series of cuts to use for each half of the joint.

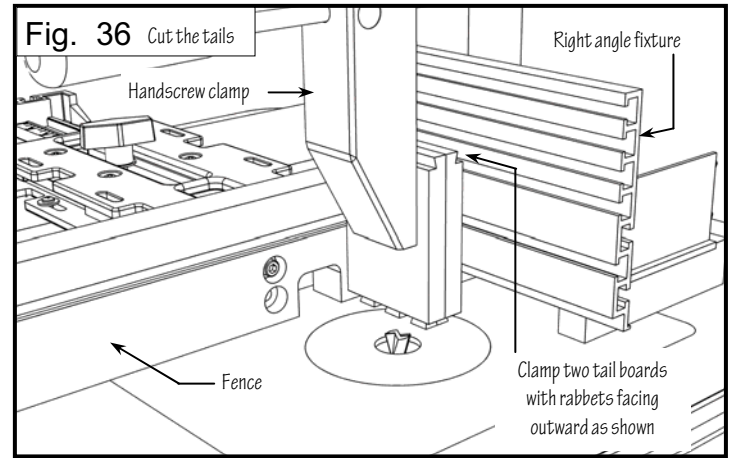
### Cut the Tails

To cut the tails for a half blind dovetail, begin by cutting a dovetail shaped rabbet on both ends of the two boards, **Fig 35**. The rabbet should be  $7/32$ " wide as shown in **Fig. 35A**. Don't cut the full rabbet in a single pass. Instead, start with a light  $1/32$ " scoring pass then use three or four light side by side passes to sneak up on the final rabbet width. You can use the  $1/32$ " scale in your INCRA Jig as a reference so you'll know how much you have widened the rabbet with each pass.



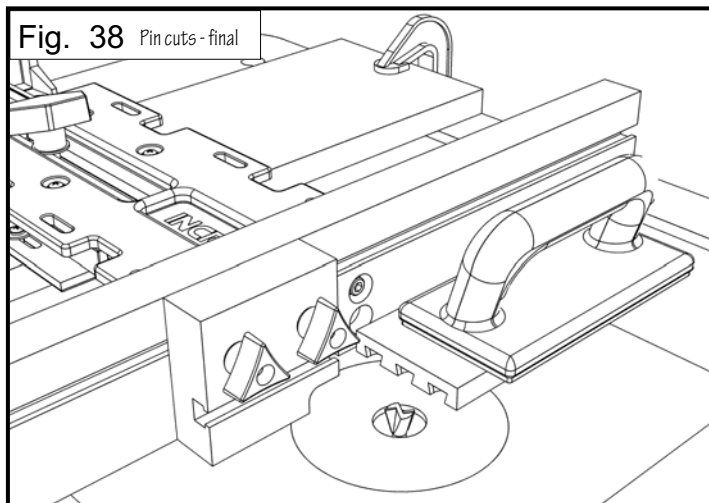
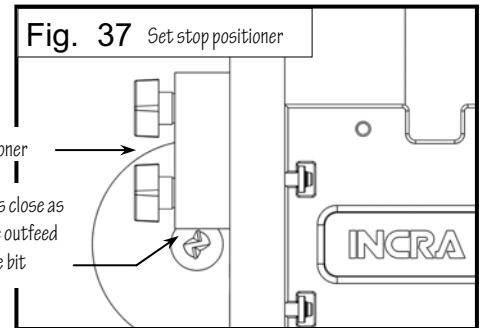
## Tail Cuts - Continued

Now, clamp the two tail boards to your Right Angle Fixture as shown in **Fig. 36** and make the tail series of cuts. The first cut for any tail board will always remove the edge of the stock. To keep this first cut clean and splinter-free, it's a good idea to return to a 1/32" scoring pass, then sneak up to the first visible mark on the template in one or two passes. The first visible mark determines which cut lines to use on the template for the remainder of the tail cuts. If the first mark is a "B" cut for example, simply move the INCRA Jig from one "B" cut to the next "B" cut until you have cut across the full width of your material. After completing the cuts, flip the boards end for end and repeat.



## Pin Cuts

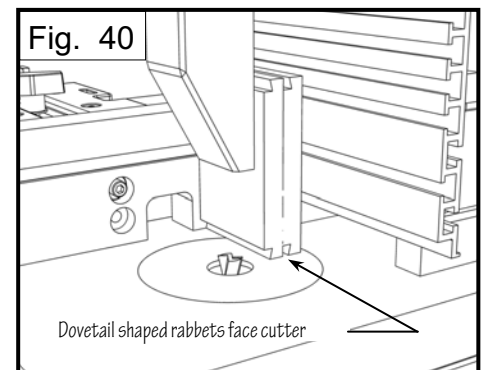
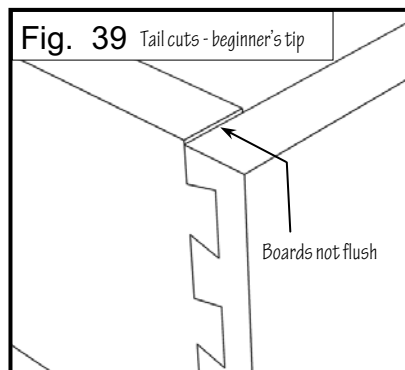
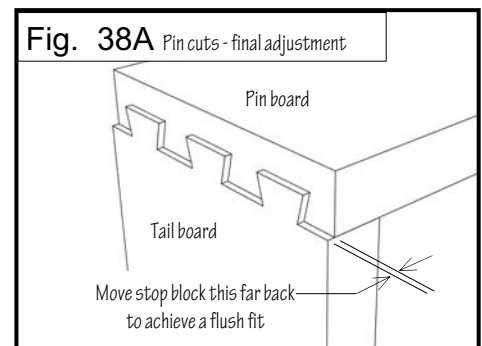
Move the INCRA Jig to the first pin cut on the template that will position the cutter outside the fence. Since the pin sockets are stopped cuts, bring the stop positioner just up to the outside diameter of the cutter and clamp in place, **Fig. 37**. This stop setup will always (and intentionally) produce a socket that is just a little short, so we'll only cut one end of one piece at this time, then adjust as necessary. Using a rubber soled push block, move the stock into the cut until you just touch the stop. Don't force the material against the stop. Now move the fence from one pin cut to the next until you have cut across the full width of your material, **Fig. 38**. After making the cuts, check the fit between this board and one of the tail boards. Adjust the stop position as necessary to control the socket length for a perfect, flush fit (See **Tip** and **Fig. 38A** at right). Now make the final pin cuts on both ends of both boards.



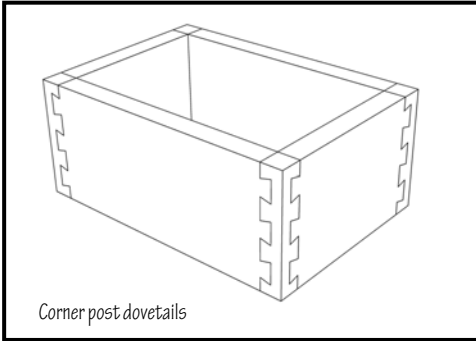
**Tip:** After making your first series of pin cuts, check the fit with one of your tail boards. If the tail board won't fit all the way into the pin board, just measure the distance it protrudes, **Fig 38A**. This is the distance you need to move the stop away from the bit to achieve a flush fit.

## Beginner's Tip

After making a half blind dovetail, you may notice that the joint looks symmetrical, but the edges of the two boards do not align flush, **Fig. 39**. This simply means that when you centered your material as described on **page 8**, you were close but not quite perfect. Of course practice DOES make perfect, but there is another method for cutting the tail boards that will ensure a flush alignment regardless of how well your board was centered. Just make sure when you clamp the tail boards to the Right Angle Fixture that the dovetail shaped rabbets on **all** of the boards **face** the cutter, **Fig. 40**. That's all it takes! Remember that even if you use this procedure, you should still center first to ensure a symmetrical looking joint.



# Corner Post Dovetail



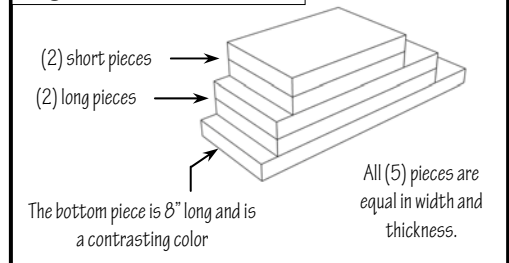
## Corner Post Dovetails

The Corner Post Dovetail is a beautiful and deceptively simple variation on the half blind technique that you have just learned. If you have mastered the half blind, then you have already just about mastered the Corner Post. In fact, in the final series of cuts, you will join four boards together using the exact same steps used to produce a half blind. If you have not made a half blind joint yet, you should go back to **Page 9** to review that section before continuing. Now, let's take a step-by-step look at this beautiful Corner Post joint.

### Stock requirements

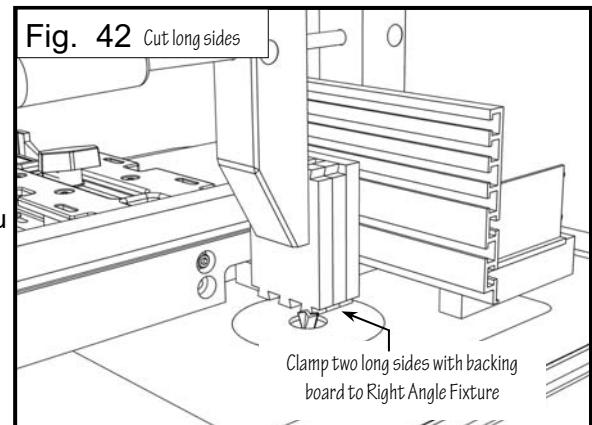
For this decorative joint, you'll need the same four pieces required for any half blind joint (two short pieces and two long pieces) plus a piece of contrasting color stock about 8" long to make the corner post. **All should be the same thickness and width, Fig. 41.** Since this joint is based on half blind techniques, the stock thickness must be greater than your depth of cut.

Fig. 41 Stock requirements



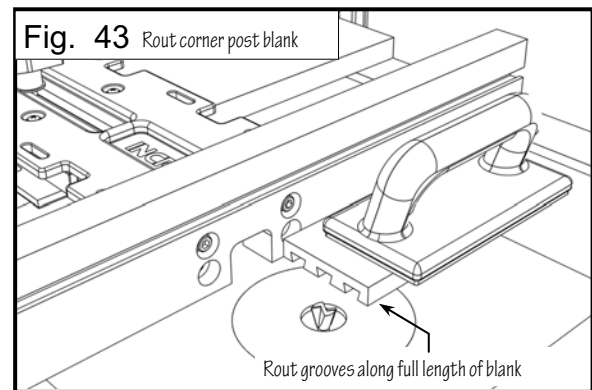
### Make the long sides for corner posts

After centering (**page 8**), set the fence to a scoring pass position and tighten the clamping knob. Clamp the two **long** boards, along with a backing board to the Right Angle Fixture. Starting with a scoring cut, advance to the first visible mark on the template in one or two passes. The first visible mark determines which cut lines to use on the template for the remainder of the cuts. If the first mark is a "B" cut for example, simply move the INCRA Jig from one "B" cut to the next "B" cut until you have cut across the full width of your material. After completing the cuts, flip the boards end for end and repeat the cuts, **Fig. 42.**



### Make the corner posts

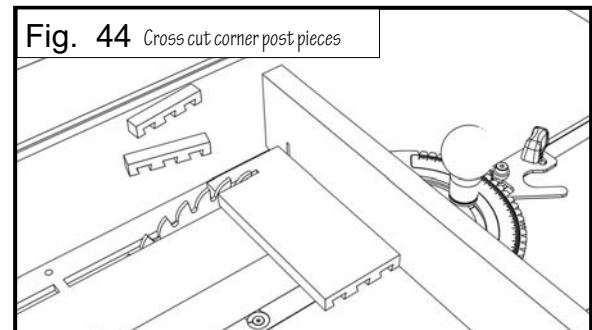
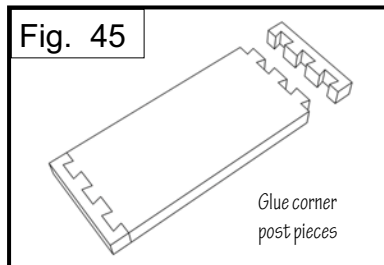
To make the corner posts, set the INCRA Jig to the first mark on the template that exposes the cutter in front of the fence, then tighten the clamping knob. If you used a "B" cut on the previous series of cuts, then the corner post series will be the "A" cuts and visa versa. Using a rubber soled push block, cut a groove through the entire length of the corner post piece. Now move the fence from one mark to the next to cut the grooves across the full width of the corner post piece, **Fig. 43.**



At your table saw, use a miter gauge with a wooden auxiliary fence to crosscut the corner post stock. **Fig 44.** You'll need four corner post pieces per box. Each piece should be about 1/16" longer than the thickness of your box side material to allow for flush belt sanding later on.

### Glue the corner posts to the side pieces

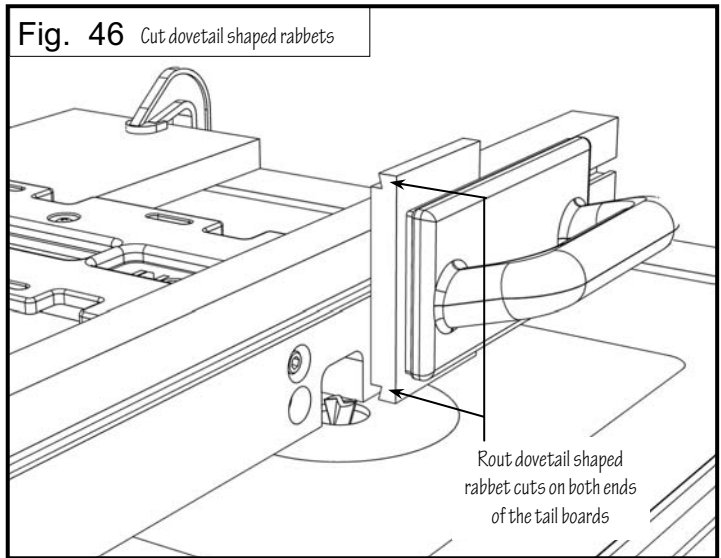
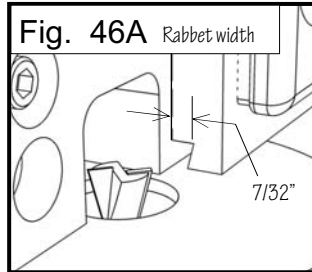
Use a brush to apply glue to two of the corner post pieces, then apply glue to both ends of the mating box side. Slide the corner post pieces onto each end of the box side and center so that the corner post overhangs each face of the larger piece slightly. We'll sand them flush later. Place scrap wood clamping pads at each end and clamp. Wipe off excess glue squeeze out and set aside. Repeat the glue-up procedure for the remaining pieces and set aside to dry for about 30 minutes, **Fig 45.** Unclamp and belt sand the corner post sections flush with the faces of the two boards.



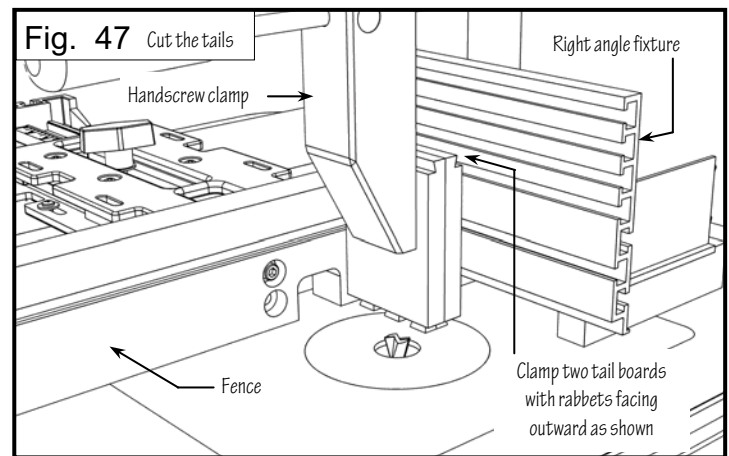
## Corner Post Tail Cuts

From this point forward all we are doing is using standard half blind dovetail techniques to join the four rectangles of wood. Here is a quick review.

Use the remaining short pieces of your material for the tails. To cut the tail boards, we'll begin with the dovetail shaped rabbets. Move the INCRA Jig to a scoring pass position and tighten the clamping knob. Make the scoring pass across both ends of both pieces. Increase the full rabbet width to  $7/32"$  with three subsequent passes, moving the fence back  $1/16"$  for each cut, **Fig. 46 and Detail 46A**.



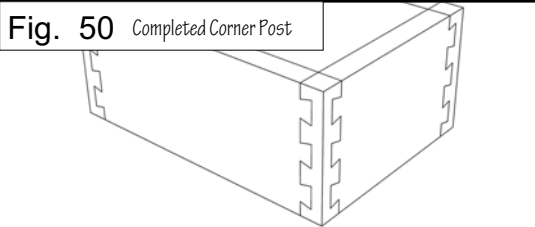
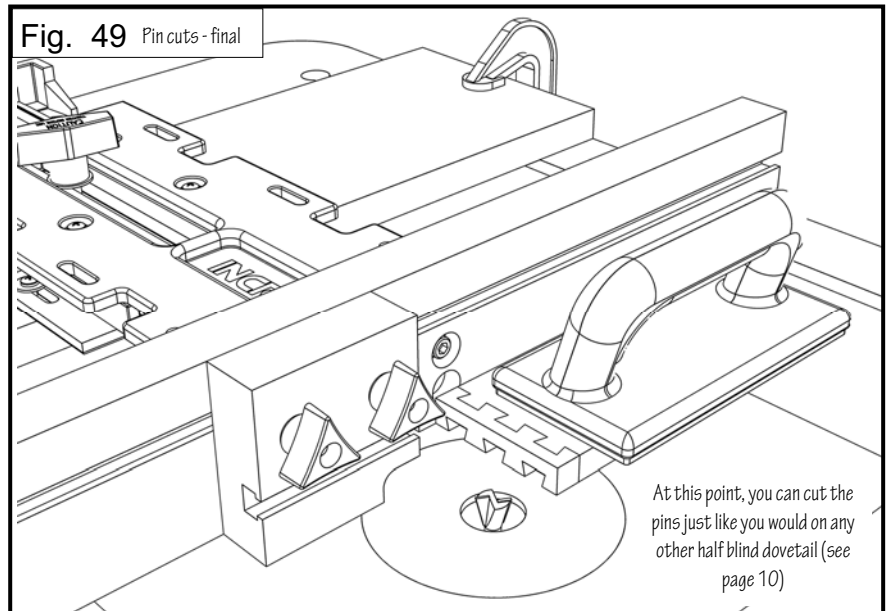
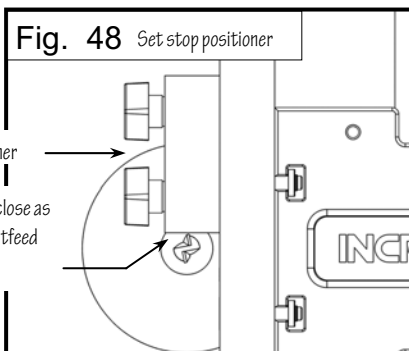
Now, clamp the two tail boards to your Right Angle Fixture as shown in **Fig. 47** and make the tail series of cuts. The first cut for any tail board will always remove the edge of the stock. To keep this first cut clean and splinter-free, it's a good idea to return to a  $1/32"$  scoring pass, then sneak up to the first visible mark on the template in one or two passes. Make the tail series of cuts across the width of your material. After completing the cuts, flip the boards end-for-end and repeat the cuts.



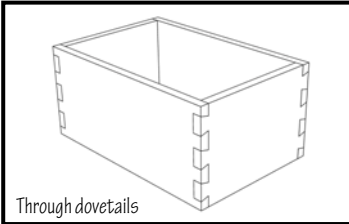
## Corner Post Pin Cuts

Slide the stop positioner just up to the outside diameter of the cutter and clamp in place, **Fig. 48**. This stop setup will always produce a socket that is a little short, so cut one end of one piece at this time, then adjust the stop position as necessary before making the final cuts on both pieces. See the tip on **page 4** for more information on

adjusting the stop position. Remember, if you used the "B" cuts when cutting the tails, you'll use the "A" cuts for the pins and visa versa, **Fig. 49**. After completing the pin cuts, assemble both pin boards to one of the tails, then add the other tail board and drive the tails home. Try this spectacular joint on your next jewelry box project.



# Through Dovetail



## Through Dovetails

When preparing stock for a through dovetail, always remember that the stock thickness must be equal to or slightly less than the depth of cut. It is a good idea to FIRST set your router bit depth of cut as described on **page 7** before preparing your stock, since you must make the stock match the cutter depth. You cannot raise or lower the cutter to match your stock thickness! Follow the instructions below to add this traditional interlocking joint to your skills resume.

## Install the template

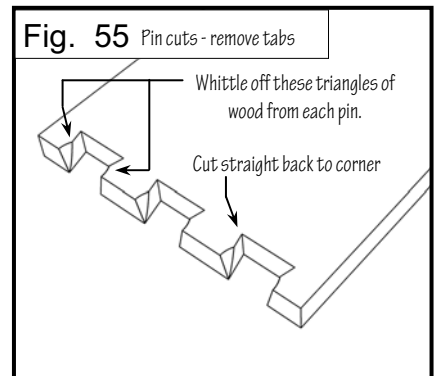
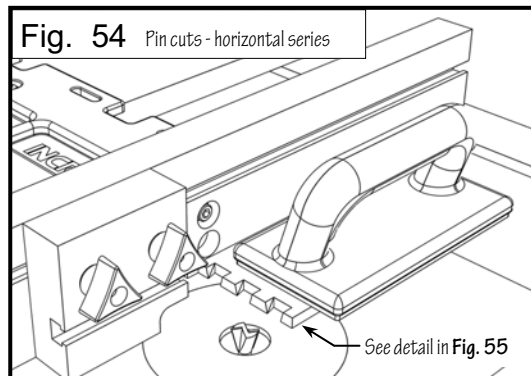
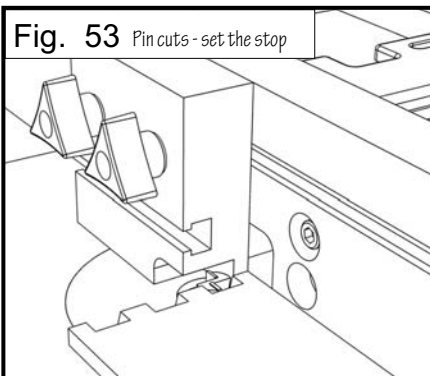
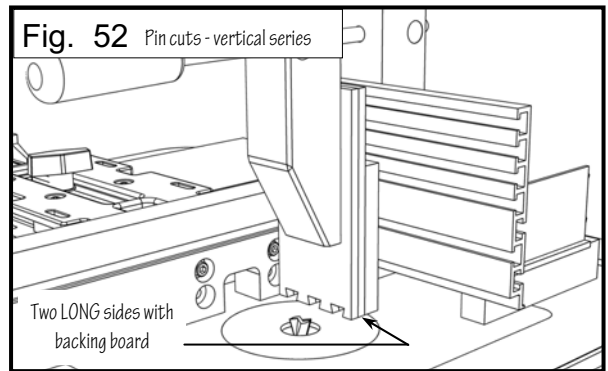
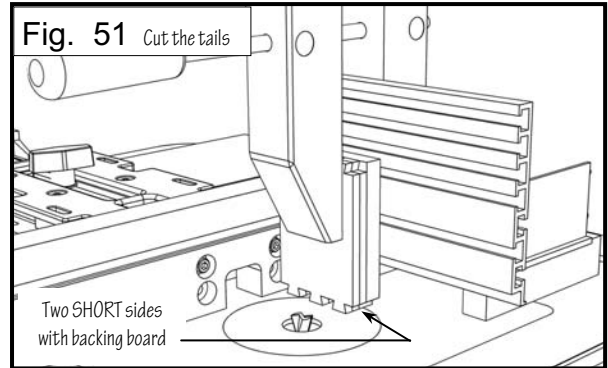
After centering as shown on **Pages 8 & 9**, select and install the **Dovetail Template**. (Refer to **Page 16** and **Figs. 33 & 33A**).

## Tail Cuts

Clamp the two tail boards to your Right Angle Fixture with a backing board as shown in **Fig. 51** and make the tail series of cuts. Use the shorter of your stock lengths for the tails. The first cut for any tail board will always remove the edge of the stock. To keep this first cut clean and splinter-free, it's a good idea to start with a 1/32" scoring pass, then sneak up to the first visible mark on the template in one or two passes. The first visible mark determines which cut lines to use on the template for the remainder of the tail cuts. Make the tail series of cuts across the width of your material. After completing the cuts, flip the boards end for end and repeat the cuts.

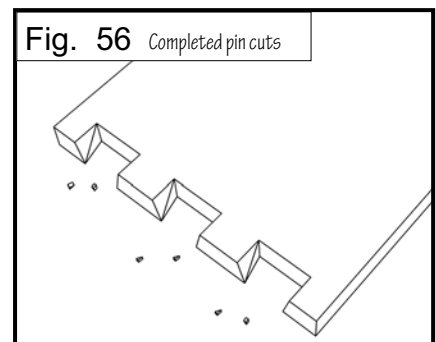
## Pin Cuts

After completing the tail cuts, clamp the two long pieces of material to the Right Angle Fixture with a backing board as shown in **Fig. 52** and make the vertical series of cuts for your pin boards. Remember, if you used the "B" cuts when cutting the tails, you'll use the "A" cuts for the pins and visa versa. After completing the cuts across one end of your boards, flip the material over and repeat the vertical pin series of cuts.



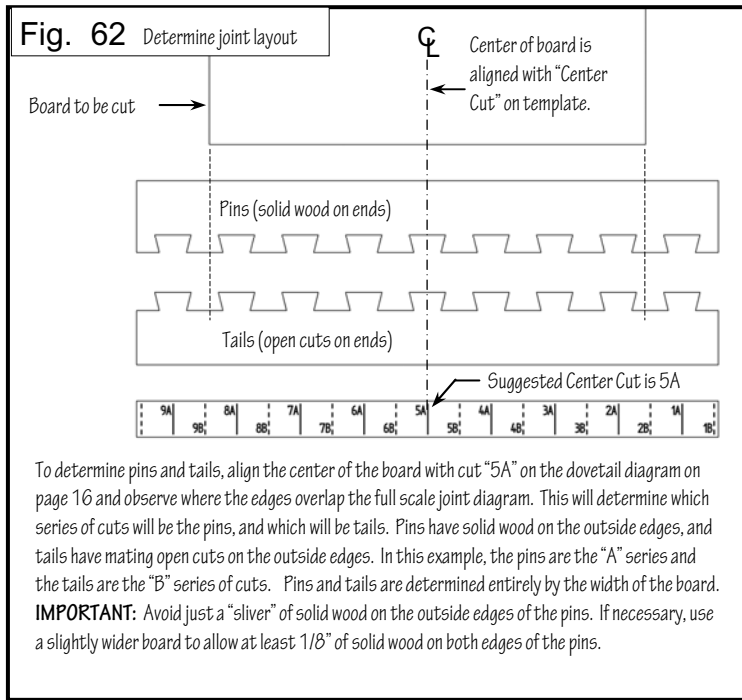
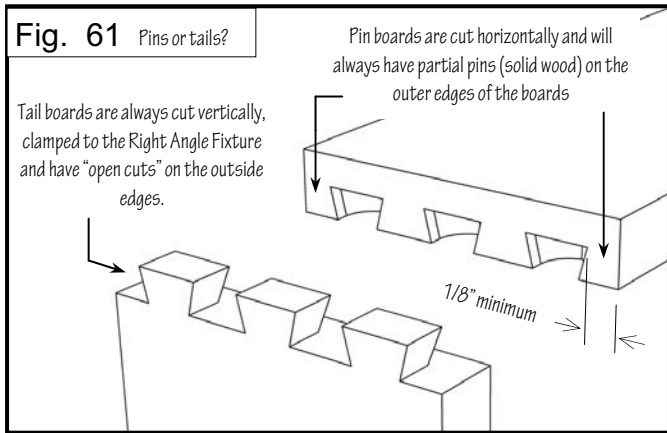
Now, we'll repeat the pin series of cuts again. This time with the material face down on the table. Return your INCRA Jig to the first pin cut on the template. With the router off, slide one of the pieces to nest the cutter inside the existing cut. You need to stop the cut just before the cutter contacts the end of the existing cut. Slide a stop positioner up to the end of the board and clamp in place, **Fig. 53**. Slide the board back away from the cutter, turn the router on and using a rubber soled push block, make the horizontal pin series of cuts on both ends of both boards, **Fig. 54**.

If you try to assemble your pin and tail pieces at this moment, you would find that a small triangle of wood blocks the two pieces from sliding together. To complete the joint, all that you need to do is whittle off this triangle of wood. This can be accomplished with a pocket knife, a razor knife or a chisel. Just follow the line of the cut that was started straight back into the corner, **Figs. 55** and **56**. Now assemble for a perfect through dovetail.



## Determine dovetail joint layout.

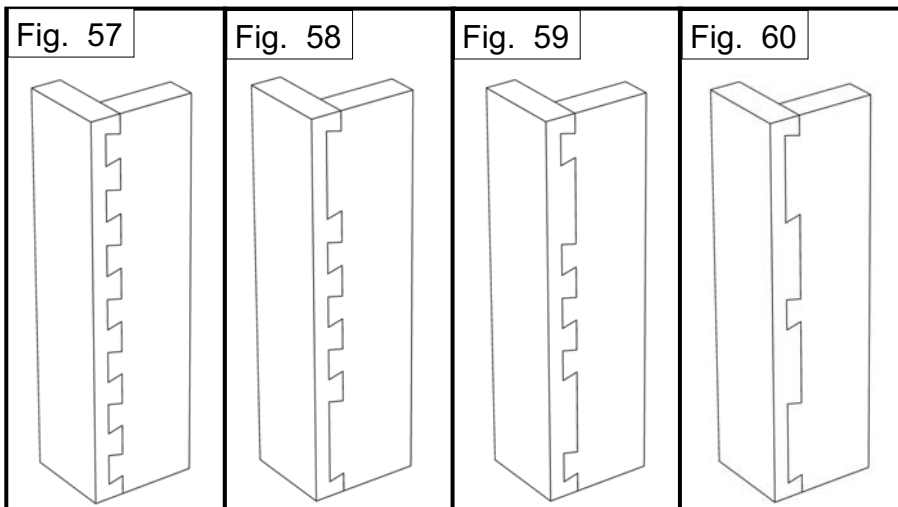
The first step in making ANY dovetail joint, whether it be Half Blind, Sliding, Through or Corner Post is to determine which half of the joint will be the pins and which half will be the tails. Follow the instructions in **Figs. 61 and 62** to decide which series of template cuts to use for each half.



To determine pins and tails, align the center of the board with cut "5A" on the dovetail diagram on page 16 and observe where the edges overlap the full scale joint diagram. This will determine which series of cuts will be the pins, and which will be tails. Pins have solid wood on the outside edges, and tails have mating open cuts on the outside edges. In this example, the pins are the "A" series and the tails are the "B" series of cuts. Pins and tails are determined entirely by the width of the board. **IMPORTANT:** Avoid just a "sliver" of solid wood on the outside edges of the pins. If necessary, use a slightly wider board to allow at least 1/8" of solid wood on both edges of the pins.

## Dovetail Variations

The drawings at right show several variations on a standard equally spaced dovetail joint. Although these joint patterns look quite different from one another, they all have one thing in common. They are all made using the same equally spaced dovetail template. By learning the variations technique described below, you can customize the joint pattern produced by any template. This technique works not only for Half Blind dovetails as pictured, but also for Box Joints, Through Dovetails and even the Corner Post Dovetails. In general, pattern variations can be designed by observing a few simple rules.



### Pin and tail board characteristics

**Fig. 61** details the characteristics of a common pin and tail board. This information is useful in trying to visualize a pattern modification using the variations technique.

### Select cuts to omit

Variations are created by OMITTING cuts on one half of the joint, and then ADDING them to the other half of the joint. Layout the board on the full scale dovetail pattern on **page 16** to help you decide whether to omit cuts from the pins or the tails. Leaving cuts off of the tail side, for example, creates wider tails, **Fig. 58**. Leaving cuts off of the pin side creates wider pins, **Fig. 59**. Although a bit more complicated, cuts can be left off of both sides of the diagram, resulting in a pattern variation that has both wider pins and wider tails, **Fig. 60**.

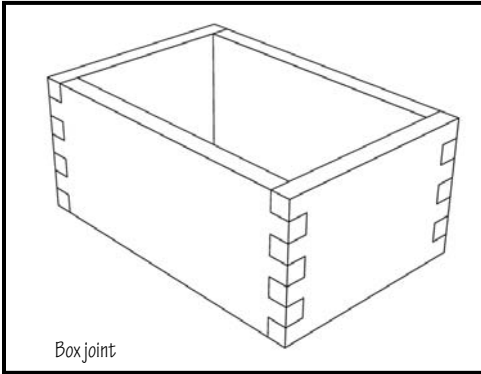
### Always modify the pattern symmetrically

For example, if you decide to omit the first two "A" cuts on your stock's width, you should also omit the last two "A" cuts.

### Cut the joint

Any cuts omitted from one half of the joint will be used to modify the other half of the joint. If you decide, for example, to omit cuts 2A and 7A when you are cutting the "A" series of cuts on the first half of the joint, JUST ADD cuts 2A and 7A to all of the "B" series of cuts on the second half of the joint to automatically produce the proper mating fit. It's really that simple, give it a try sometime. Dozens of pattern variations are possible for each joint type.

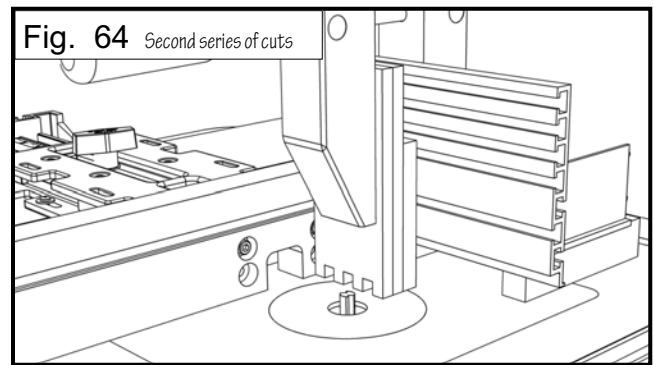
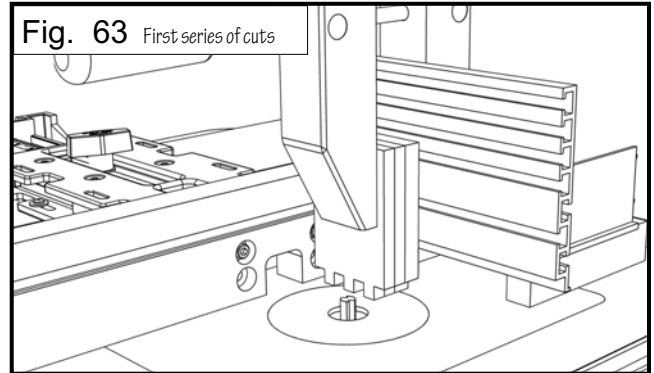
# Box Joints



## Box Joints

This simple but effective interlocking joint technique is the easiest of all. You'll cut your material two pieces at a time with a backing board, using the "A" cuts for two of the boards and the "B" cuts for the other two.

Let's get started.



## Install the template

After centering as shown on **Pages 8 & 9**, select and install the **Box Joint Template**. (Refer to **Page 16** and **Figs. 33 & 33A**).

Clamp two pieces of your stock to the Right Angle Fixture with a backing board as shown in **Fig. 63**. Begin with a scoring pass, then advance to the first visible mark on the template in one or two passes. The first visible mark determines which cut lines to use on the template for the remainder of the cuts on these two boards. If the first mark is a "B" cut for example, simply move the INCRA Jig from "B" cut to "B" cut until you have cut across the full width of your material. After completing the cuts, flip the boards end for end and repeat the cuts.

Now clamp the final two boards to the Right Angle Fixture with a backing board as shown in **Fig. 64** and make the alternate series of cuts remaining on the template on both ends of your boards.

# Maintenance

Keeping the saw-toothed racks on your INCRA Jig clean of debris and sawdust is all that is necessary to keep the unit in top shape. Occasionally remove the clamping knob and blow out the racks. An old toothbrush is a great tool to remove embedded sawdust and chips. An occasional spray of dry lubricant on the threads of the clamping knob and carriage bolt will make it easier to clamp and unclamp.

## WARRANTY

Taylor Design Group, Inc. warrants this product for one year from date of purchase. We will repair any defects due to faulty material or workmanship, or at our option, replace the product free of charge. Please return the failing component only, postage prepaid, along with a description of the problem to the address below. This warranty does not apply to parts which have been subjected to improper use, alteration, or abuse.

### LIFETIME WARRANTY ON POSITIONING RACKS

If an INCRA positioning rack in this tool becomes damaged for ANY reason, Taylor Design Group will replace it free of charge for as long as you own your tool. Return the damaged rack, postage prepaid, and allow 1 to 2 weeks for delivery.

**NOTE:** Replacements cannot be sent unless damaged racks have been received by Taylor Design Group, Inc.

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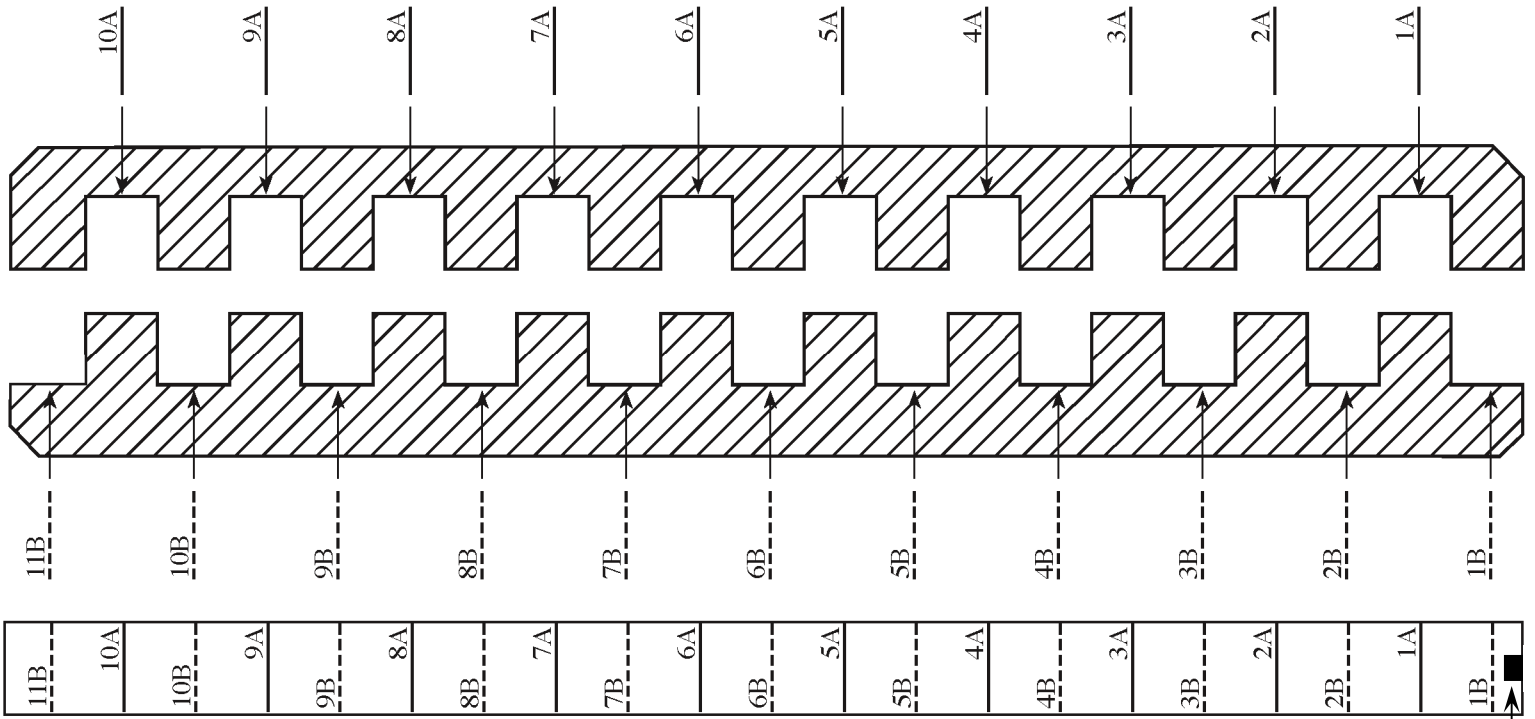


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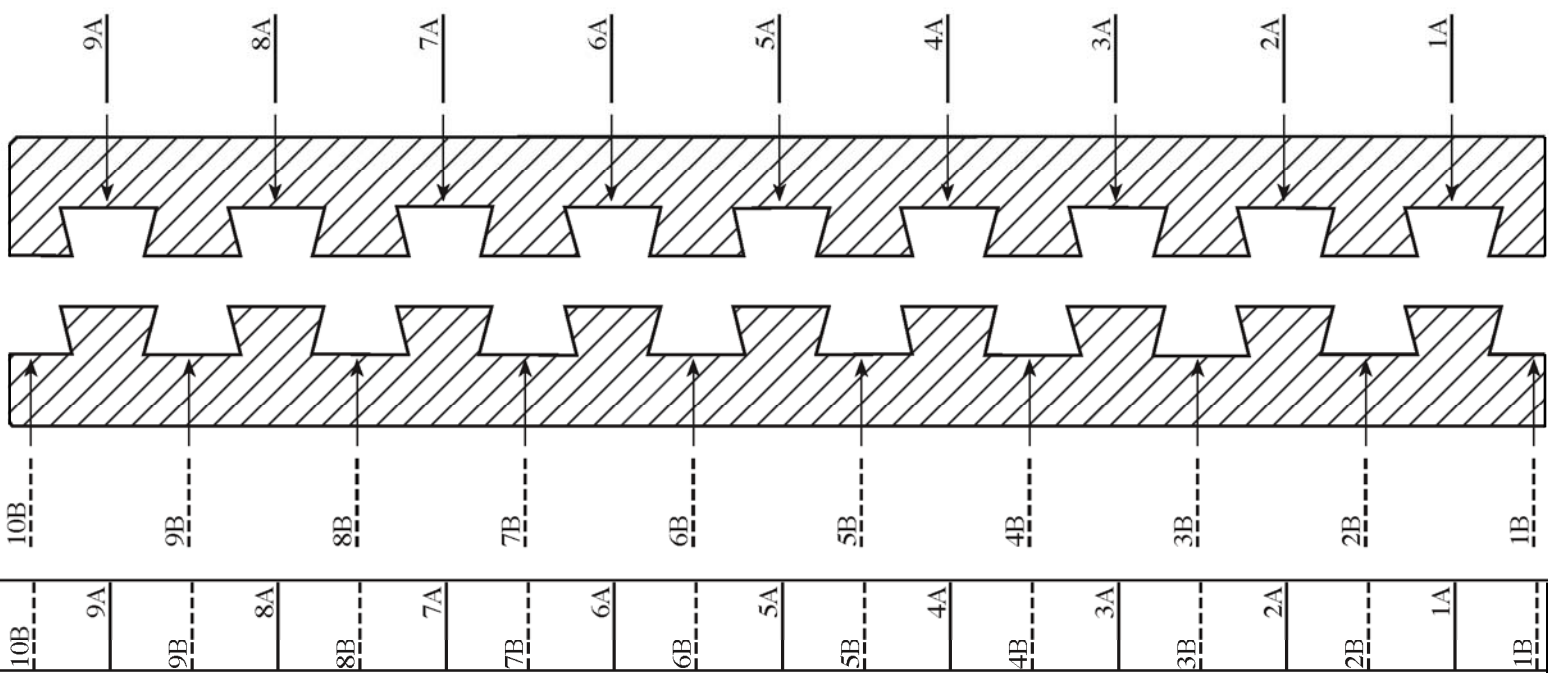
### 3/8" Box Joint Template



**Suggested Center Cut: 6B**

**Template Identification: Notch punched in this end**

### 1/2" Dovetail Template



**Suggested Center Cut: 5A**

**Approximate Rabbet Width: 7/32"**

**Spacing to Set Depth of Cut: 7/8"**

**Template Identification: This end NOT PUNCHED**

#### Depth of Cut Chart

BIT TYPE	APPROX. DEPTH OF CUT	STOCK THICKNESS	
		HALF BLIND	THROUGH
1/2" 14° DOVETAIL	1/4"	1/2"	1/4"
1/2" 10° DOVETAIL	3/8"	3/4"	3/8"