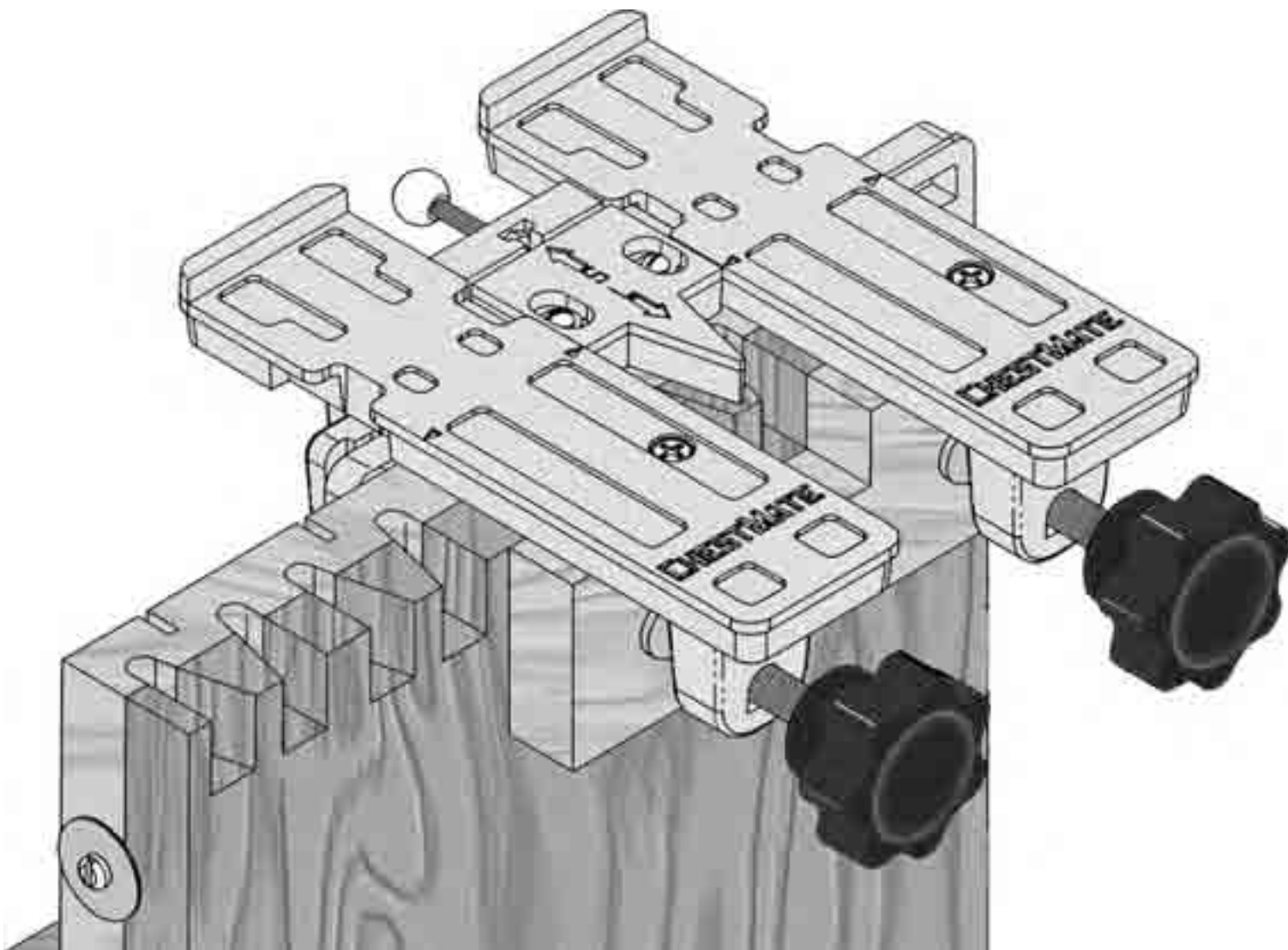

ChestMate™

Dovetail Jig



PRAZI USA

Model PR-3900 Owners Manual

**Please read this manual in its entirety before using the
PRAZI ChestMate.**

PRAZI USA

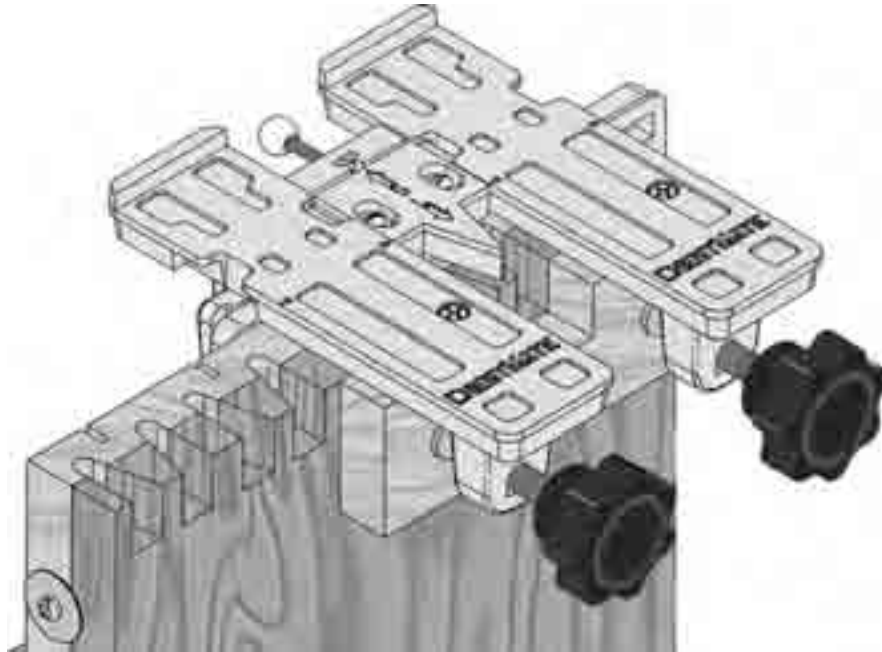
214 Rear South Meadow Rd
Plymouth MA, 02360

(800)-262-0211
www.praziusa.com

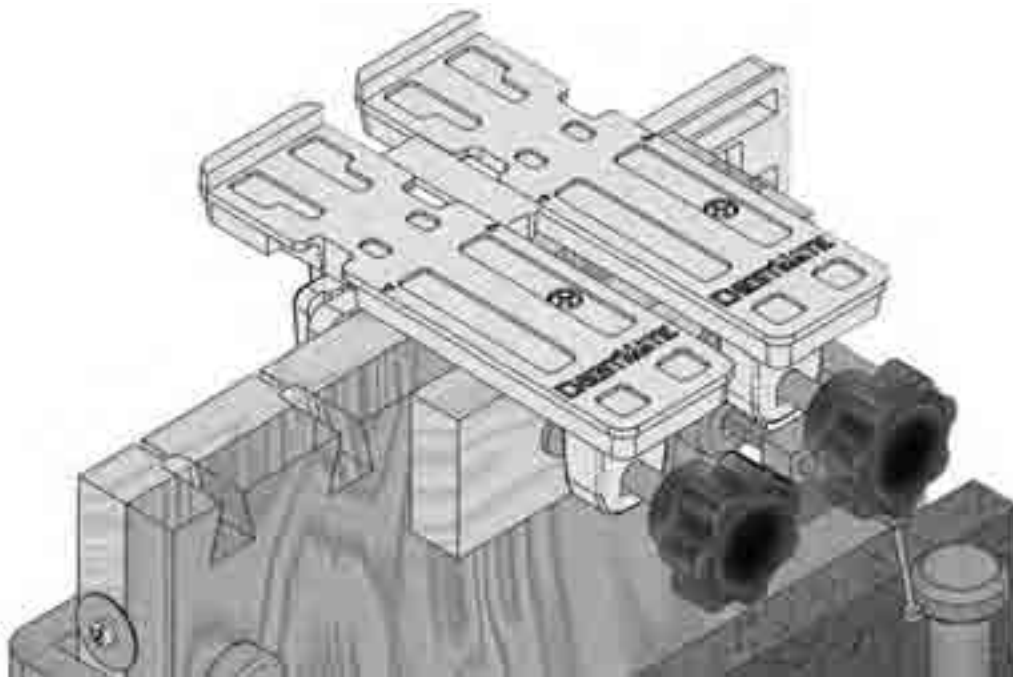
Introduction

ChestMate Dovetailing Jig

Your ChestMate Dovetailing Jig is a very versatile tool. It allows you to create any pattern of dovetail arrangements that you want to configure. The ChestMate is extremely easy to use because of its size and robustness. It is also very safe when used as directed. It takes minimum set up time that results in accurate dovetail pins and tails. When backed up properly and with the use of sharp cutter bits the pins and tails will be splinter free. The jig is optimized for the use of standard 1 inch stock (13/16 inch store bought).



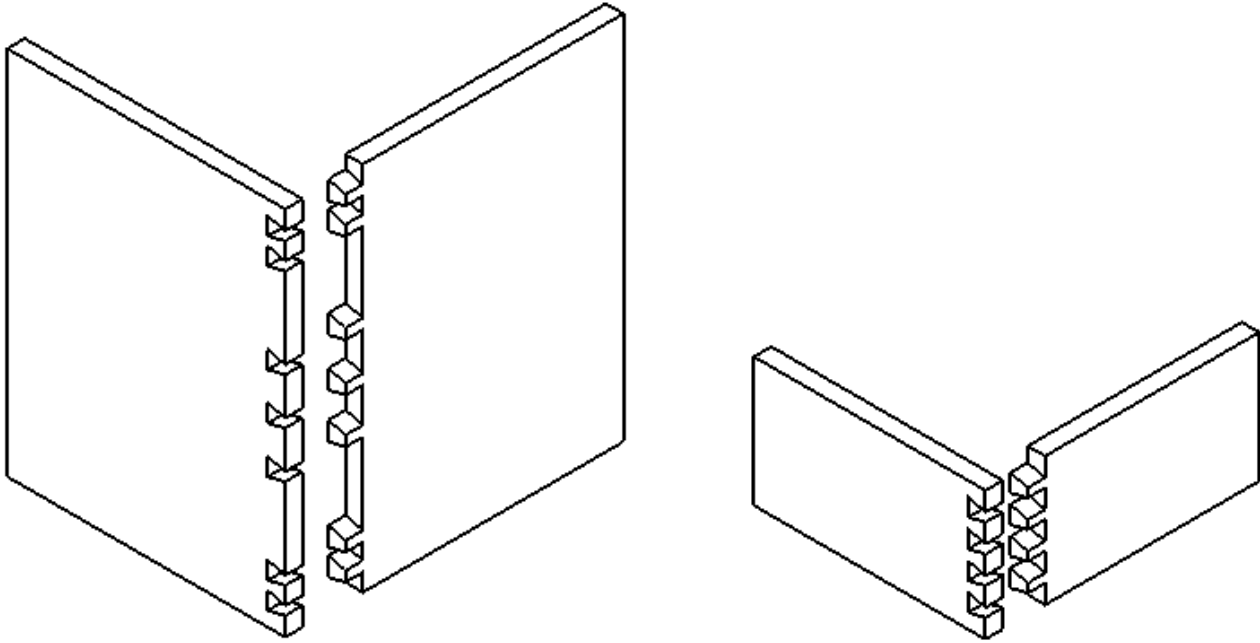
Jig with Pin Cutting Insert



Jig with Tail Cutting Insert

Versatility

Your project size will not be restricted nor will your arrangement of through dovetail patterns.



Equipment needed to use with your fixture.

- *A standard router with a six inch diameter base. The fixture is designed for this type of home workshop router. A larger industrial router will not be safe to use with this jig.
- *A 5/8 inch follower bushing that does not protrude more than 1/2 inch from the router base. (Standard)
- *A 3/4 inch 14 degree cutter for your chuck size. (Standard)
- *A 5/16 inch straight cutter for your chuck size. (Standard)
- *A securely mounted bench vice and miscellaneous shop clamps.

Important.

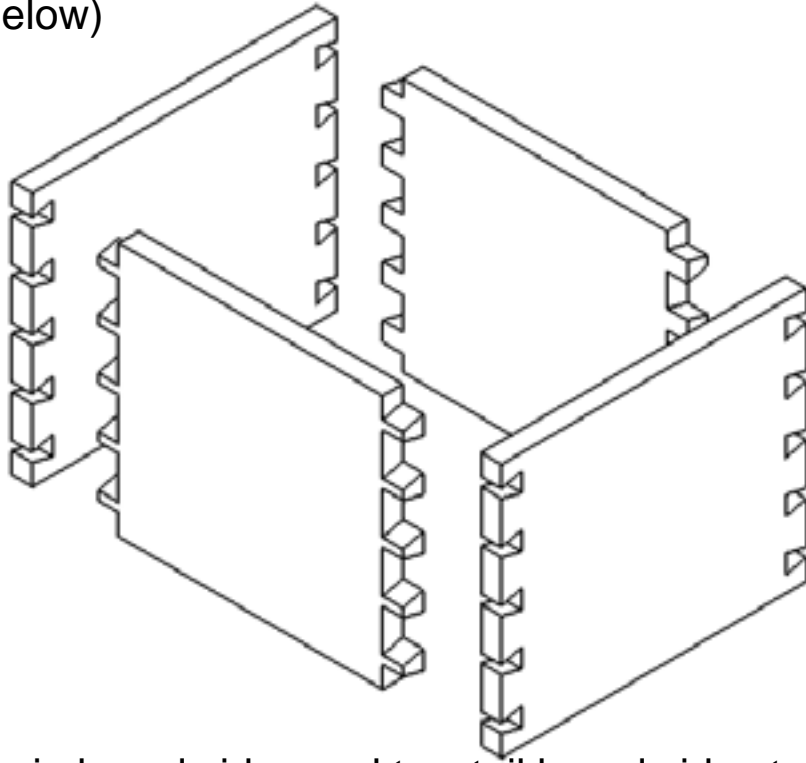
Your cutter bits must be sharp to expect splinter free dovetails and problem free cutting. Dull bits are also dangerous.

Your pattern follower must be designed to fit your router to expect concentricity between the cutters and the followers.

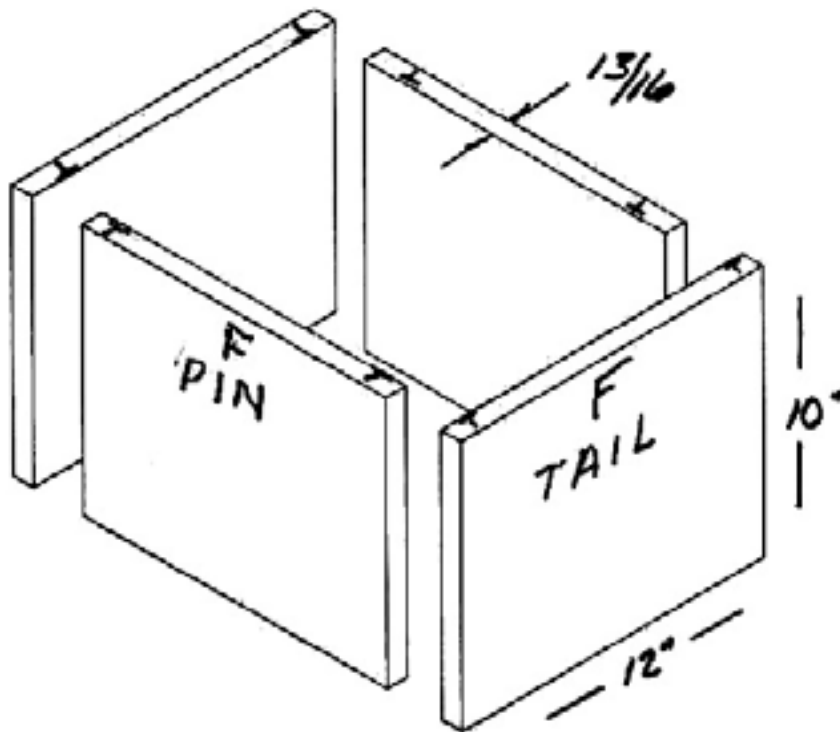
Your router should be in good shape. Any noticeable shaft or bushing wear will cause inaccuracies and splinters.

Getting Started: Project Boards

1 These instructions are written around a five dovetail per corner box shown below. (See note below)



2 Prepare your two pin board sides and two tail board sides to be 10 inches high and 12 inches long. Mark the top edge and front face of each board.

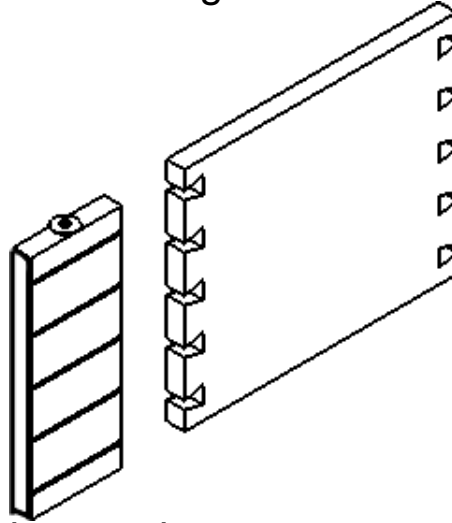


It is not paramount to use these dimensions or this pattern arrangement for your trial box. However, it is recommended that you keep the pieces small enough to be manageable to allow concentration on the dovetail cutting and not the solutions to the clamping/holding of large project boards.

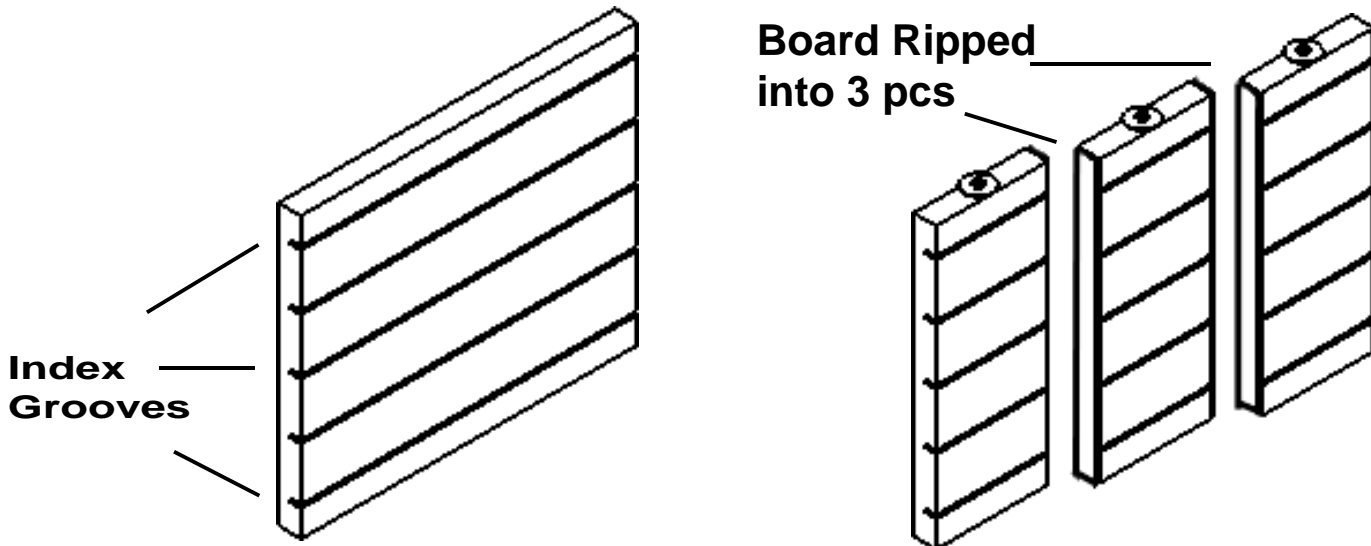
Getting Started: Indexing Boards

Please take time to understand this page thoroughly.

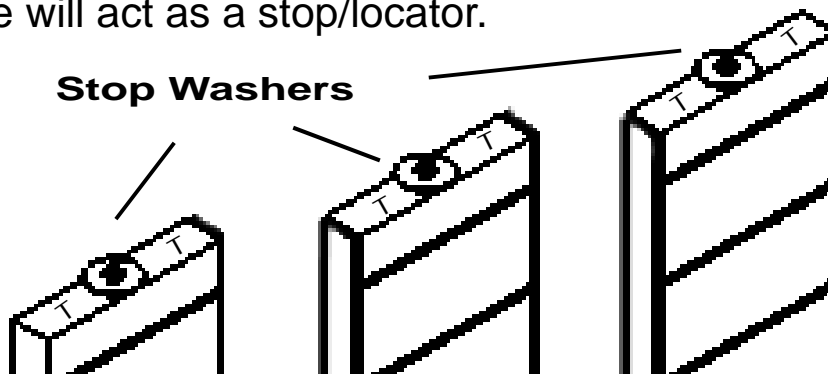
1 The saw cuts into the three indexing boards represent the spacing of the dovetail arrangements. Note the alignment in the illustration below.



2 It is very easy to have the spacing arrangement on each board the same which it **absolutely must be**. To obtain this, **first** cut the indexing grooves into the stock as one board, and **secondly**, rip the board into three pieces approximately the same width. Mark the top edges. The grooves should be 1/8 in. wide and 3/8 in. deep. The standard width of a carbide blade is 1/8 in.

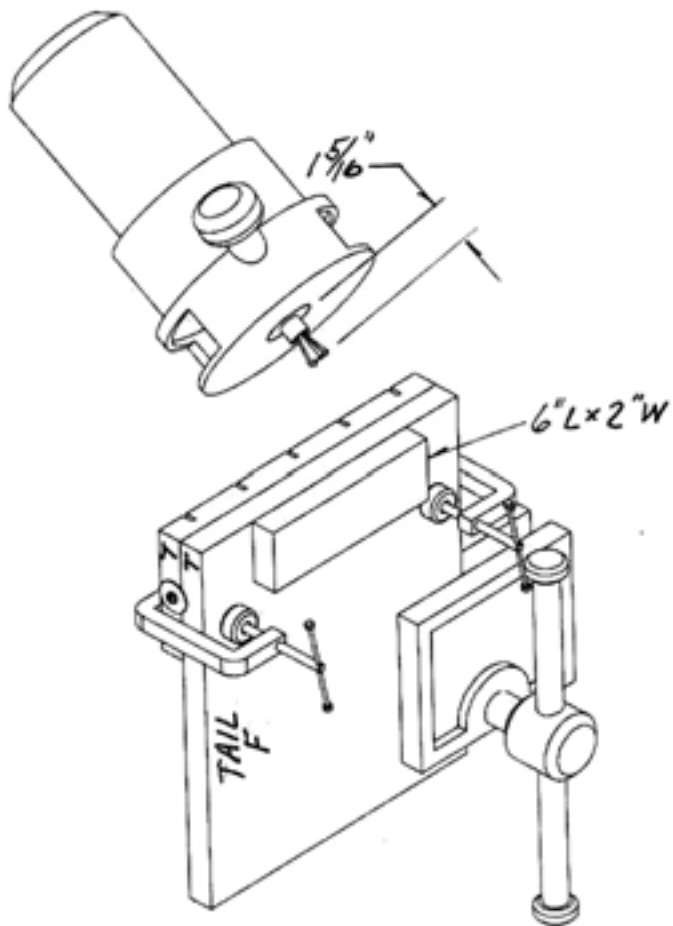


3 Insert a screw and a washer that overhangs only the clean edge of the indexing boards. These will act as a stop/locator.



Making Tail Boards (Always First)

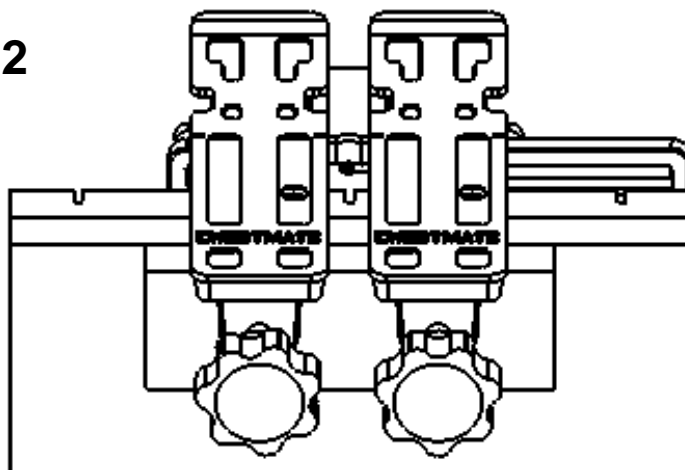
1



Set up as shown. (Tail Board, Indexing Board and a front back-board). Add additional clamping support if needed. Adjust your dovetail bit so it extends slightly more than 1 and 5/16 inches from your router base.

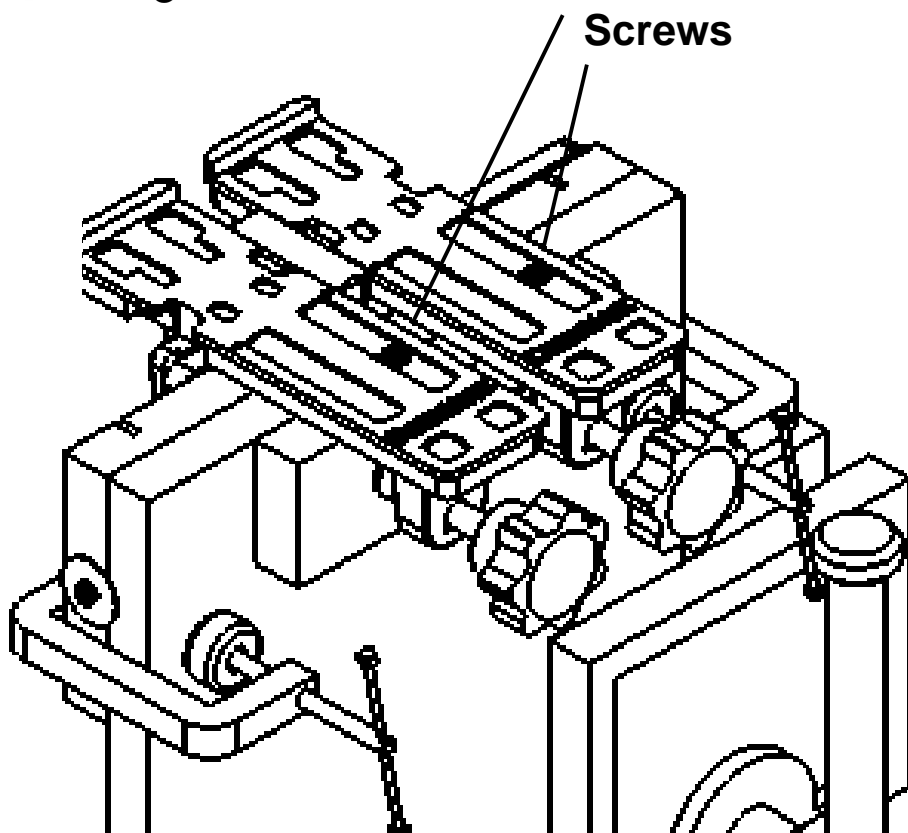
Safety Note: When routing the outside tails or pins, with the jig overhanging the work piece, tighten the inside clamp first to assure even clamping.

2



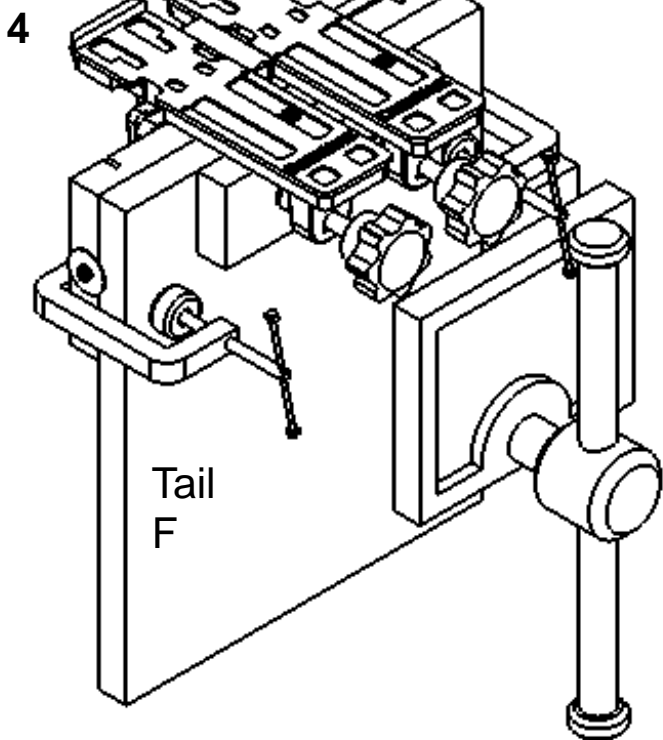
With the tail insert attached to the jig, align the indexing tab to a groove in the indexing board.

3

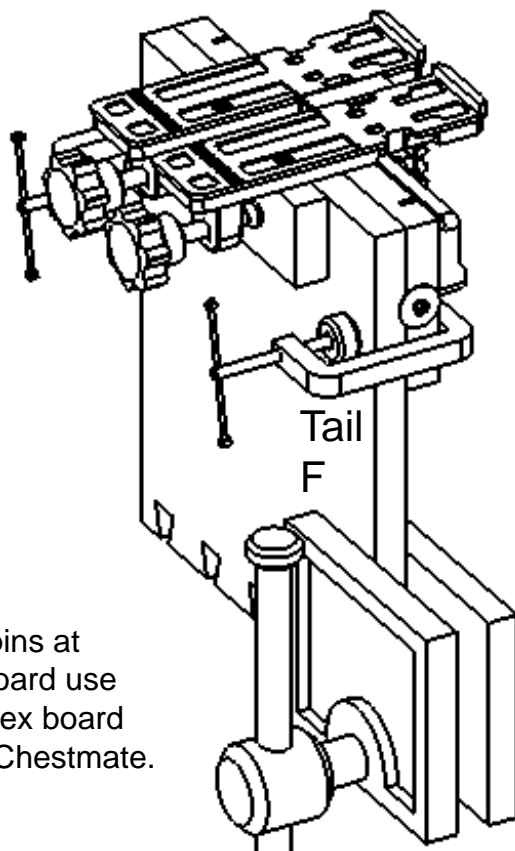


Secure the jig to the three boards. See Note below. Attach the back-board to the jig with two screws. Loosen them one quarter turn. Set the router into place, turn on, cut to the stop, turn off, **wait until it stops** and remove router

Making Tail Boards



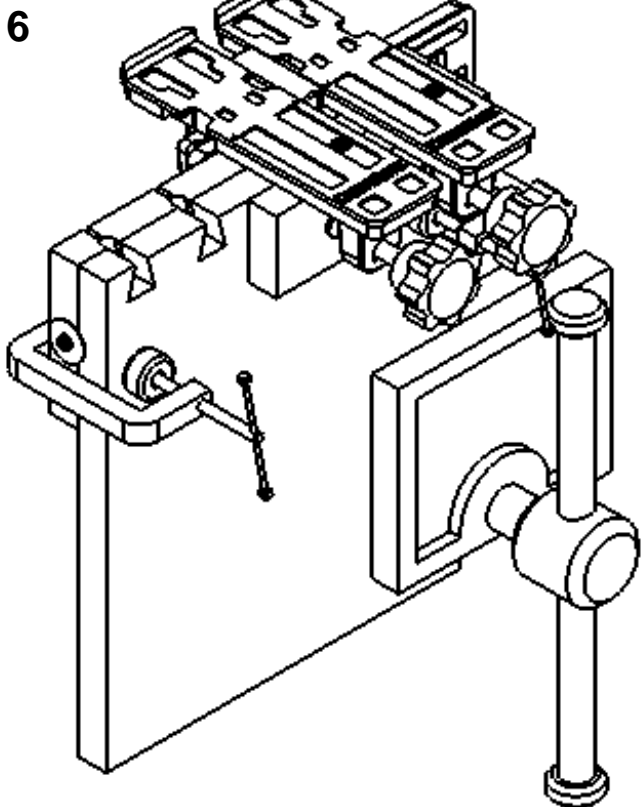
5



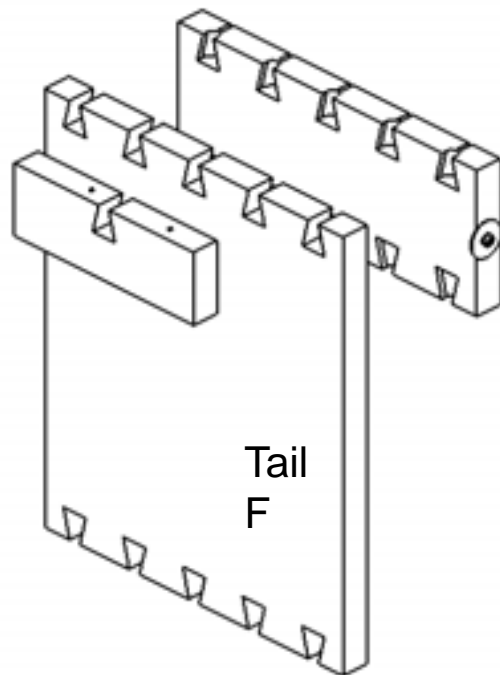
***Tip:** To make half pins at the edges of your board use the edges of the index board as a guide for your Chestmate.

Set the jig into another groove and continue until complete.

Break down the set up and set up as shown. Note Indexing board.



7



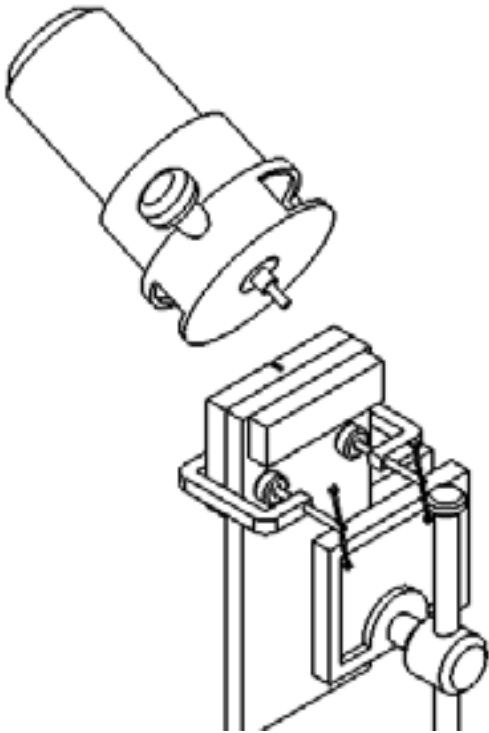
Repeat the tail cutting as you did the first end.

Your three pieces should look like this. Use a second indexing board to make the second tail board.

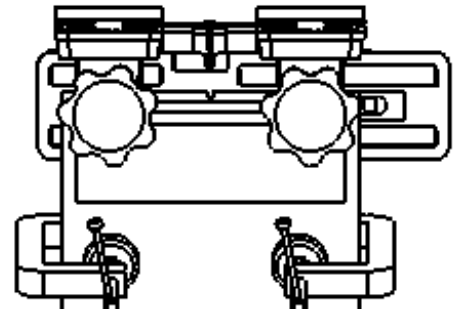
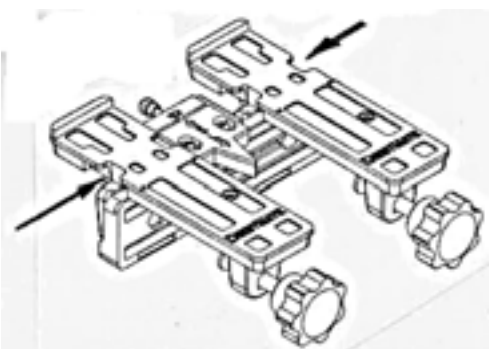
Making the First Test Pin (Use Scrap Material)

1 Due to tolerances in every part on your bench, **one adjustment** must be made to expect perfect pin and tail fits.

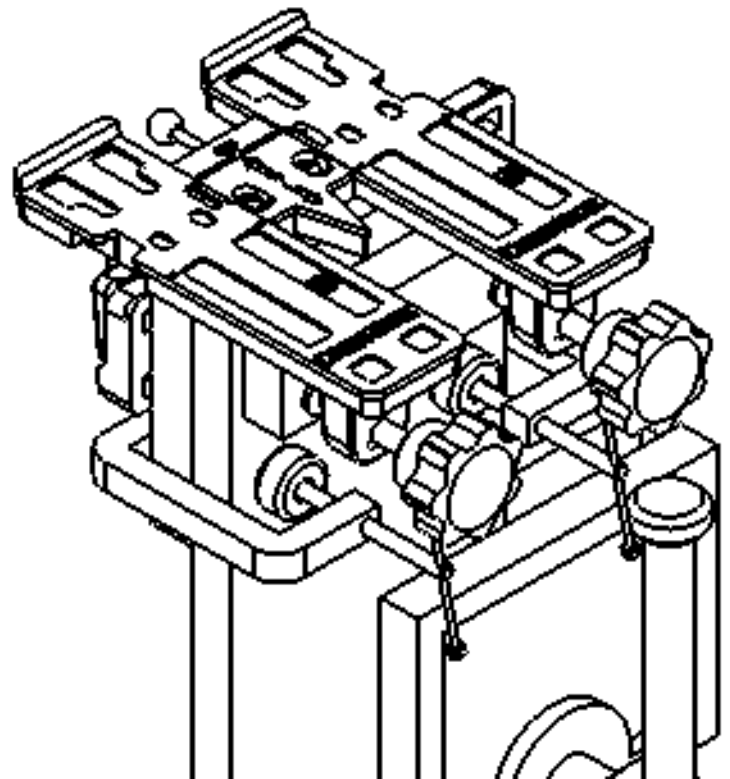
Set up some 1 x 6 scrap stock as shown (below left). The rear backup piece should have one saw groove the same as those on your indexing boards. Set the 5/16 straight router bit so it extends slightly more than 1 5/16 inch from the base of the router.



1a Always apply enough side force to the two bases to securely position the pin cutting insert between them.



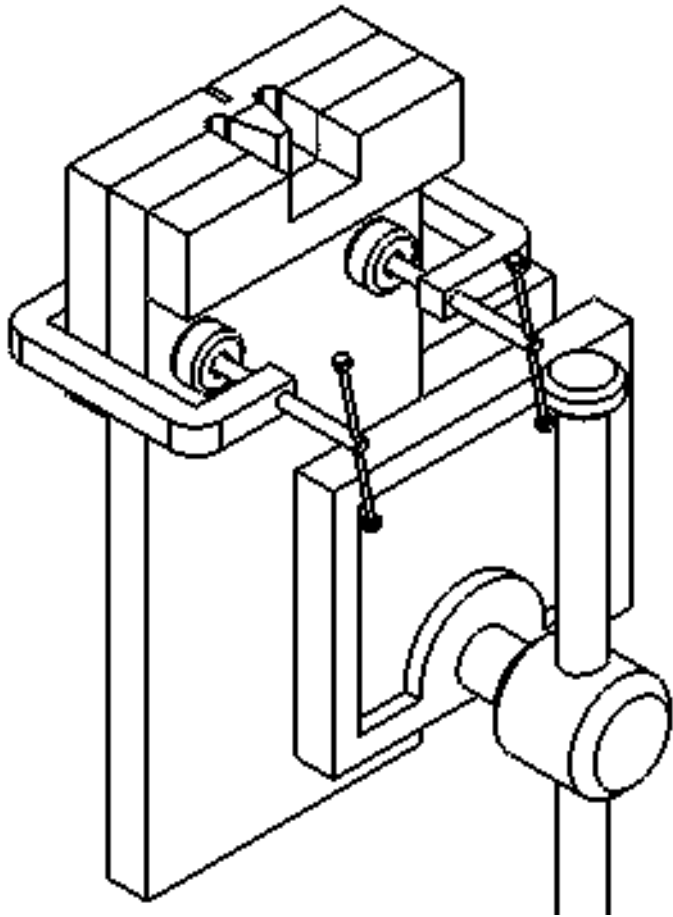
2 Mount the jig to the test boards making sure the indexing tab is located in the saw groove (above), and secure it to the work piece as shown below. Use two screws to attach the front back up board to the jig. Loosen the screws 1/4 turn.



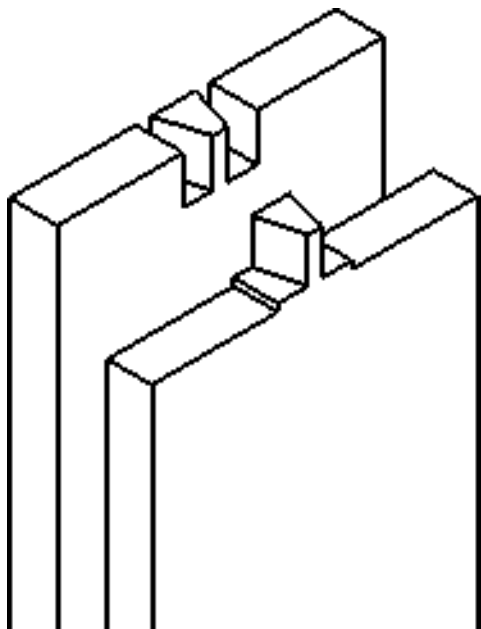
Look at the next illustration to see what you are about to do.

3 After viewing the next illustration, set the router onto the jig and following the inside contour of the jig machine away the material as shown in the next illustration.

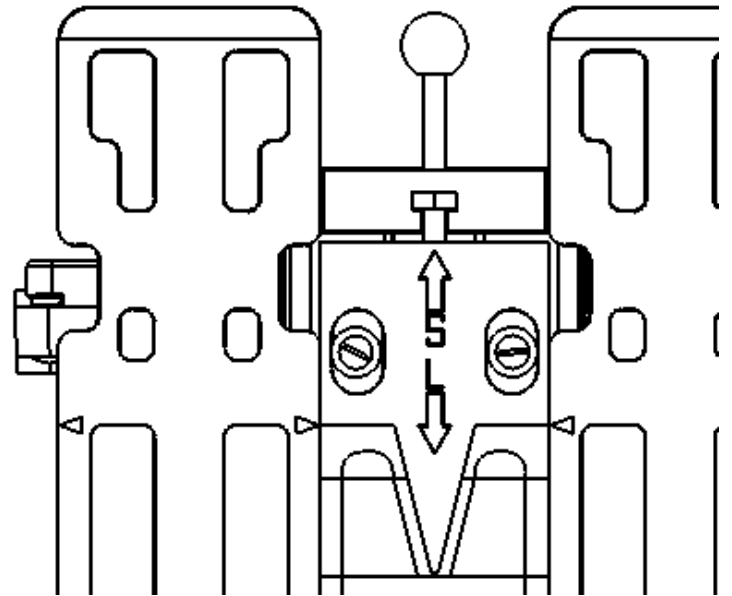
Making the Test Pin Continued



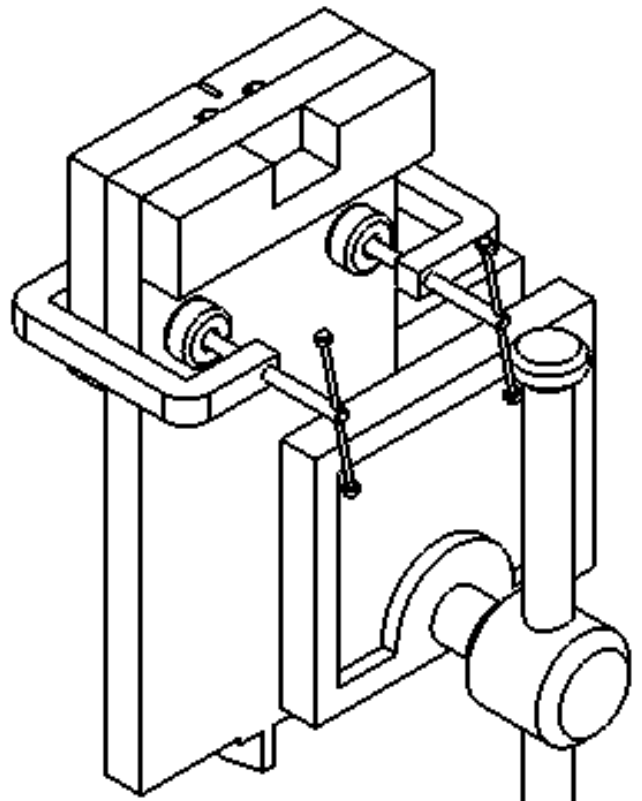
4 Your results should look like this.



5 Trim away the material around the pin as shown. Fit it to a tail board that you previously cut.



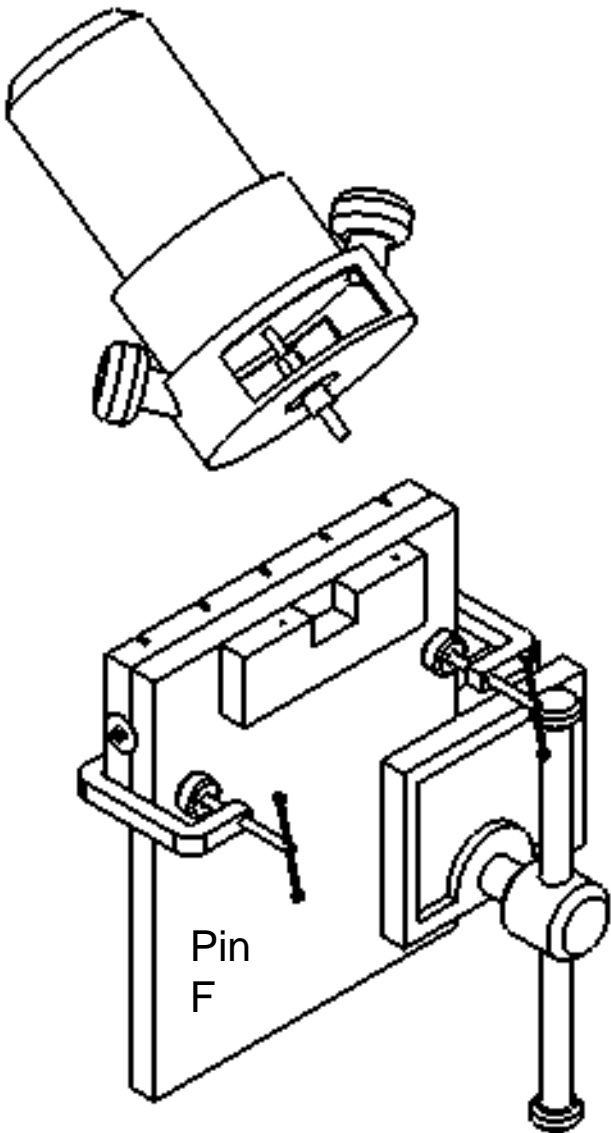
6 Starting point is located at the two arrows. If the pin is too wide, move the adjustable insert back. If it is too small, move the insert forward. (Loosen two hold down screws, turn adjustment screw and re-tighten.)



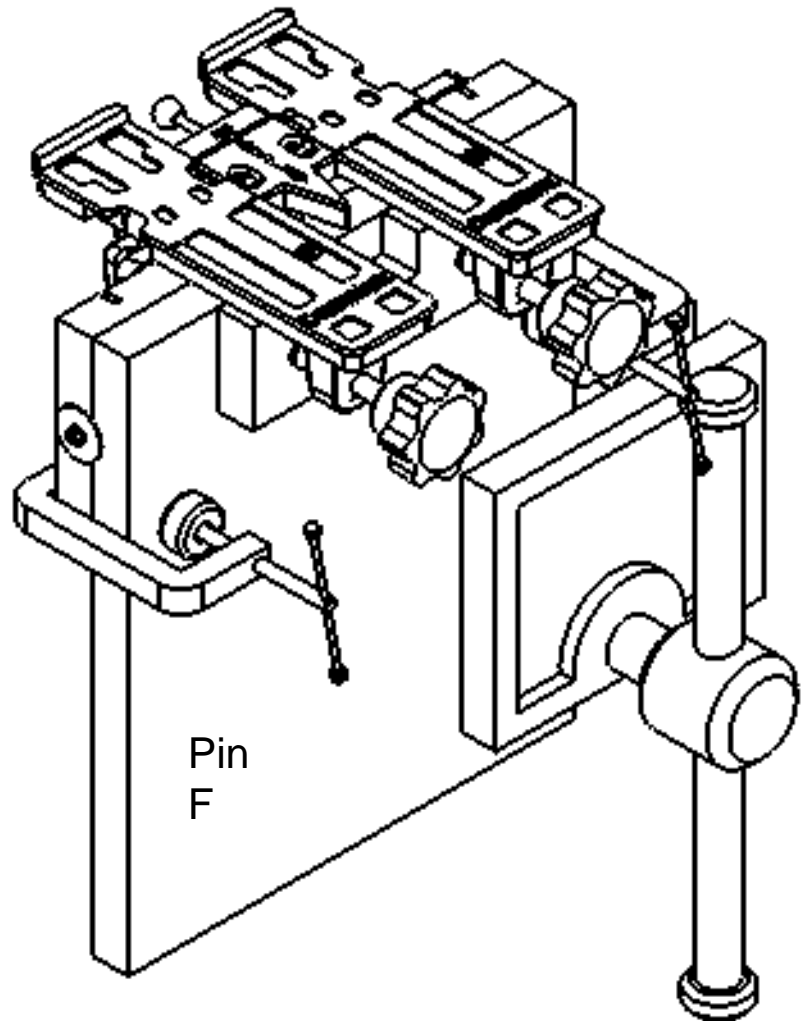
7 Set up again as shown. *This is a one time adjustment once you get the fit that satisfies you, it is done.*

Making Pins (Now that your adjustment is done)

1 Set up as shown below with your first pin board secured in your vice and your third indexing board clamped to it with your top surfaces flush and your stop against the edge. Use the front back up board from your test pin set up. The depth of your 5/16 bit has already been set from trial cut. **(Do not alter the depth for any reason.)**

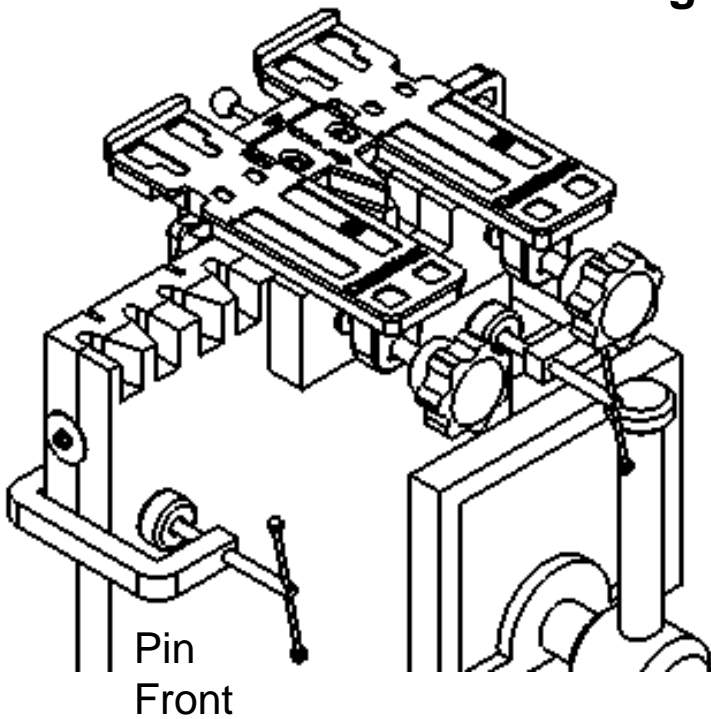


2 Secure the jig, which now has the pin cutting insert from your trial cut, to the work piece making sure the indexing tab is located in a groove. Fasten the front back up piece to the jig with two screws. After tightening, loosen slightly.



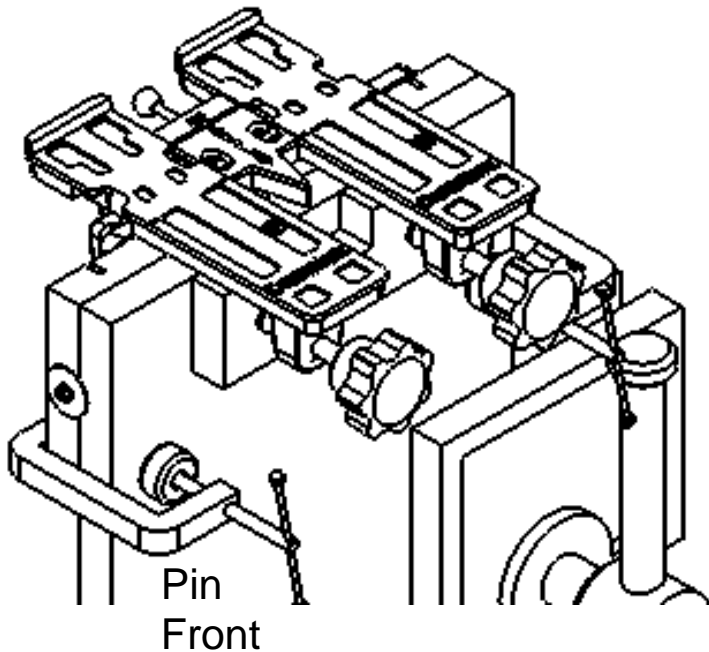
Set the router in place, turn it on, follow the path as you did with your test cut, turn it off, **wait until it stops** and remove the router.

Making Pins Continued

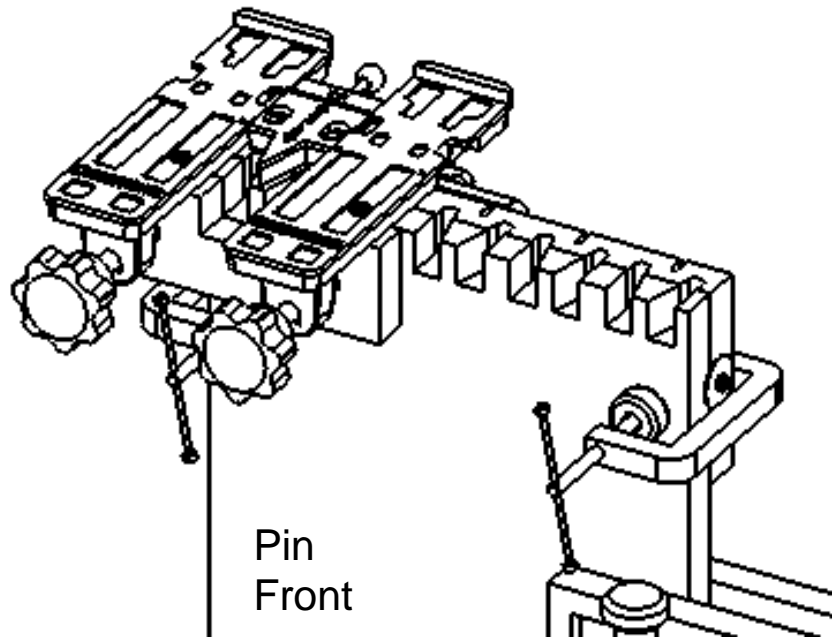


3 Set the jig into another groove and repeat until that end of the board is complete.

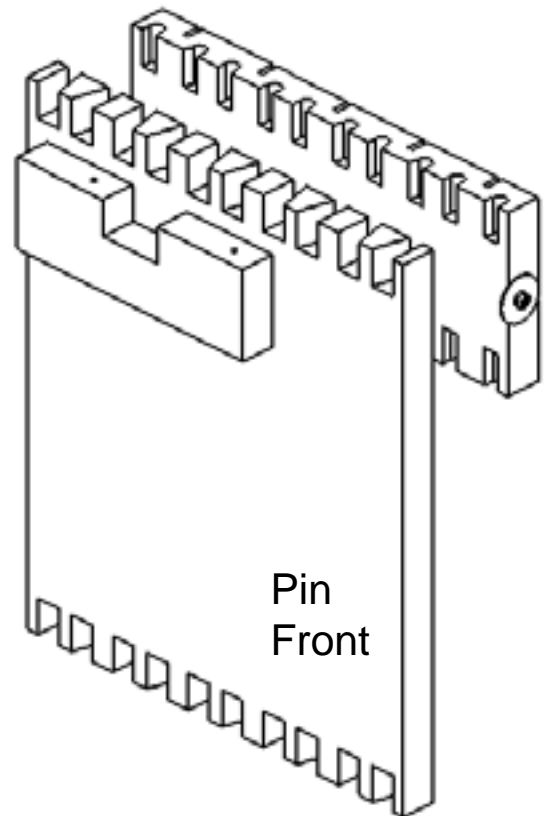
***Tip:** To make half pins at the edges of your board use the edges of the index board as the guide for your Chestmate.



4 Break down the set-up and carefully set up as shown. It is important to rotate the indexing board as shown.



5 Repeat the tail cutting operation to the second end.

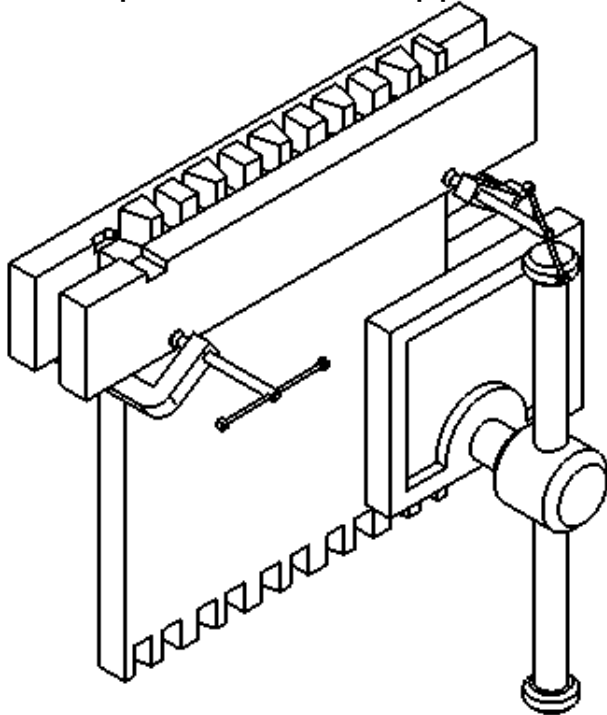


6 Your three pieces should look like this. Use the same indexing board and front back-up board to cut the second pin board. Save them for future projects

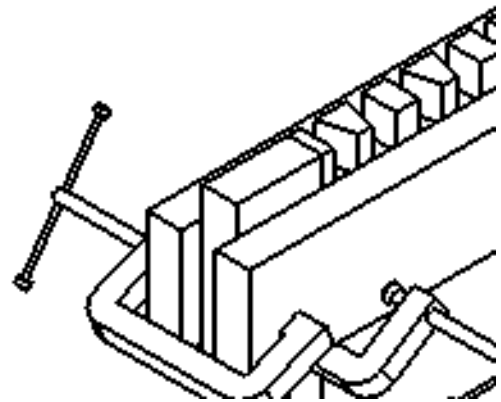
Completing the Pin Boards

It is very important **not to have changed** the depth of your straight cutter since the pin cutting. Removing the material between the pins must be done with the exact depth cutter as you used when cutting the pins for ideal results.

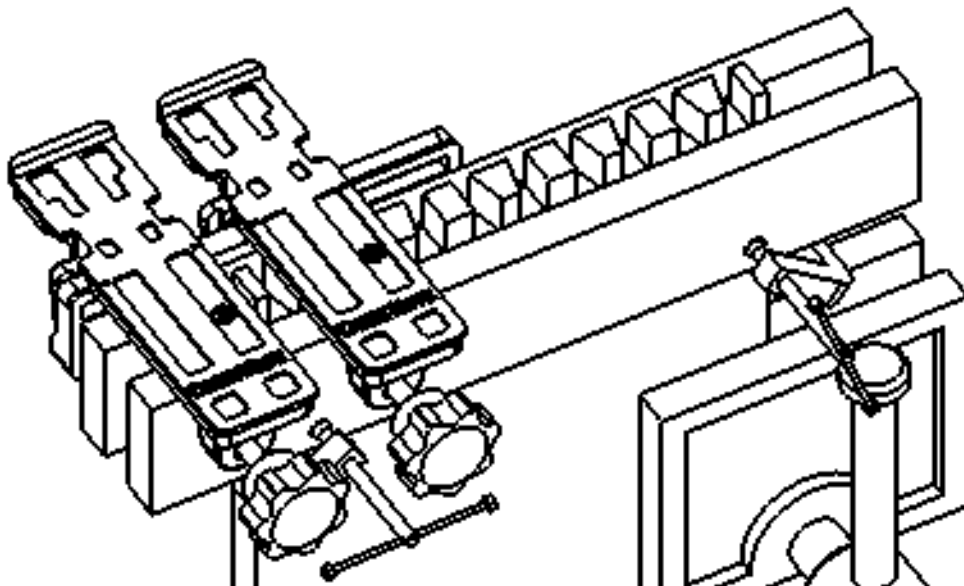
1 Set up one of your pin boards as shown. Use some scrap stock in place of your indexing board and front back up board both extending about 3 inches from each side of the pin board and approximately 1/2 inch lower than the top edge.



*Certain dovetail arrangements may warrant extra edge backup as well as additional seating surface for the jig.

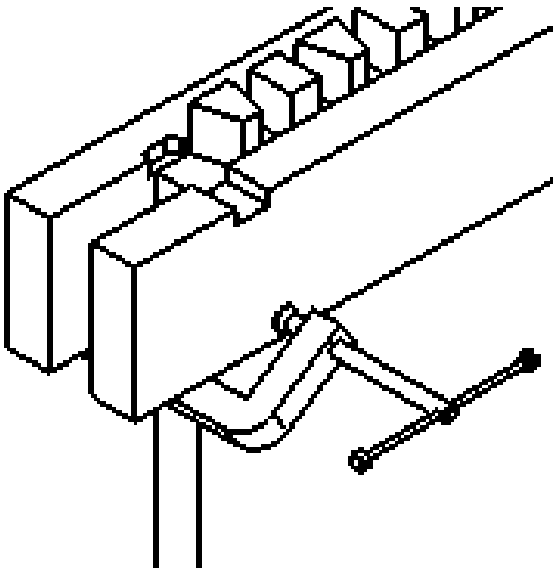


2 Clamp the jig securely to the assembly as shown to cut away the outside unwanted material. Always tighten the inside knob first when the outside base extends off of the work piece. Be sure to set and clamp the jig so the cutter is not going to hit a pin when removing the unwanted material.

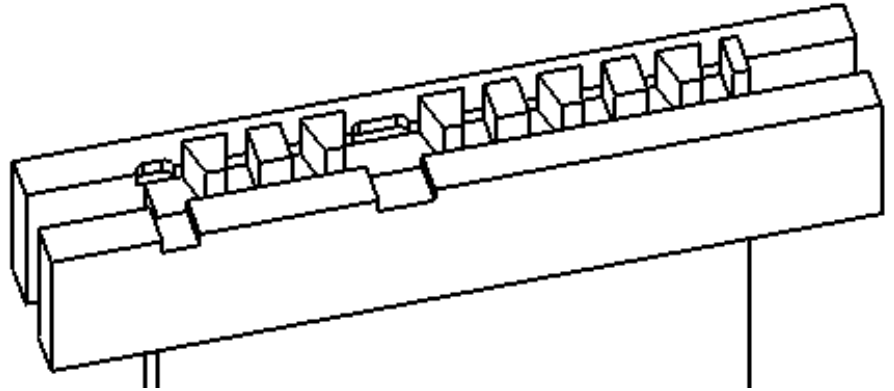


Completing the Pin Boards (Continued)

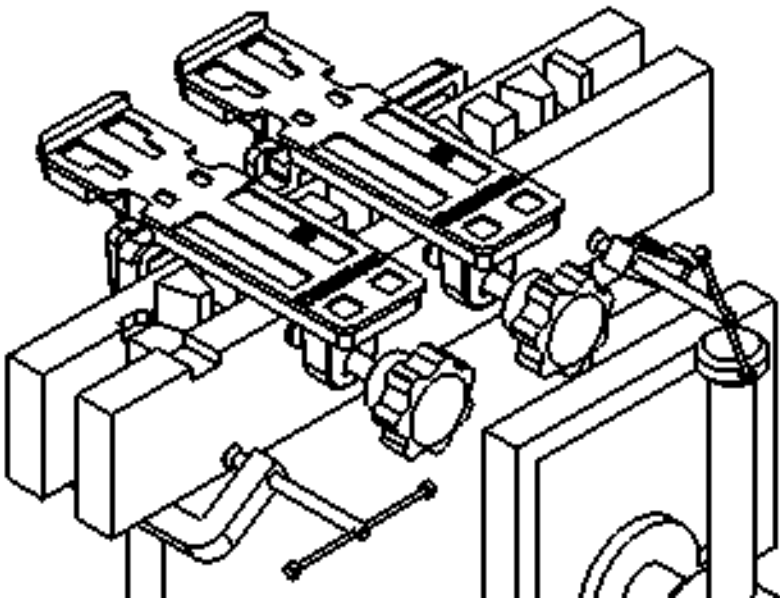
3 The "end" clearing should look like this when completed.



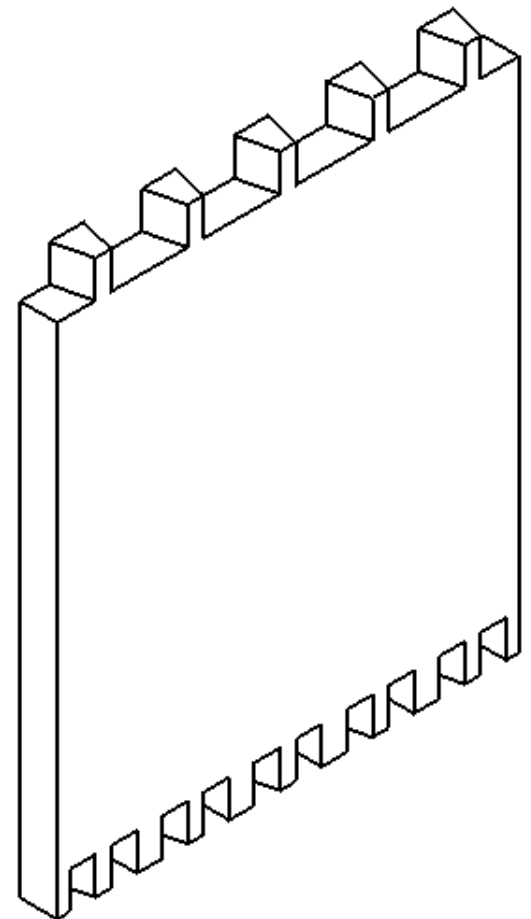
5 The results of clearing unwanted inside material should look like this.



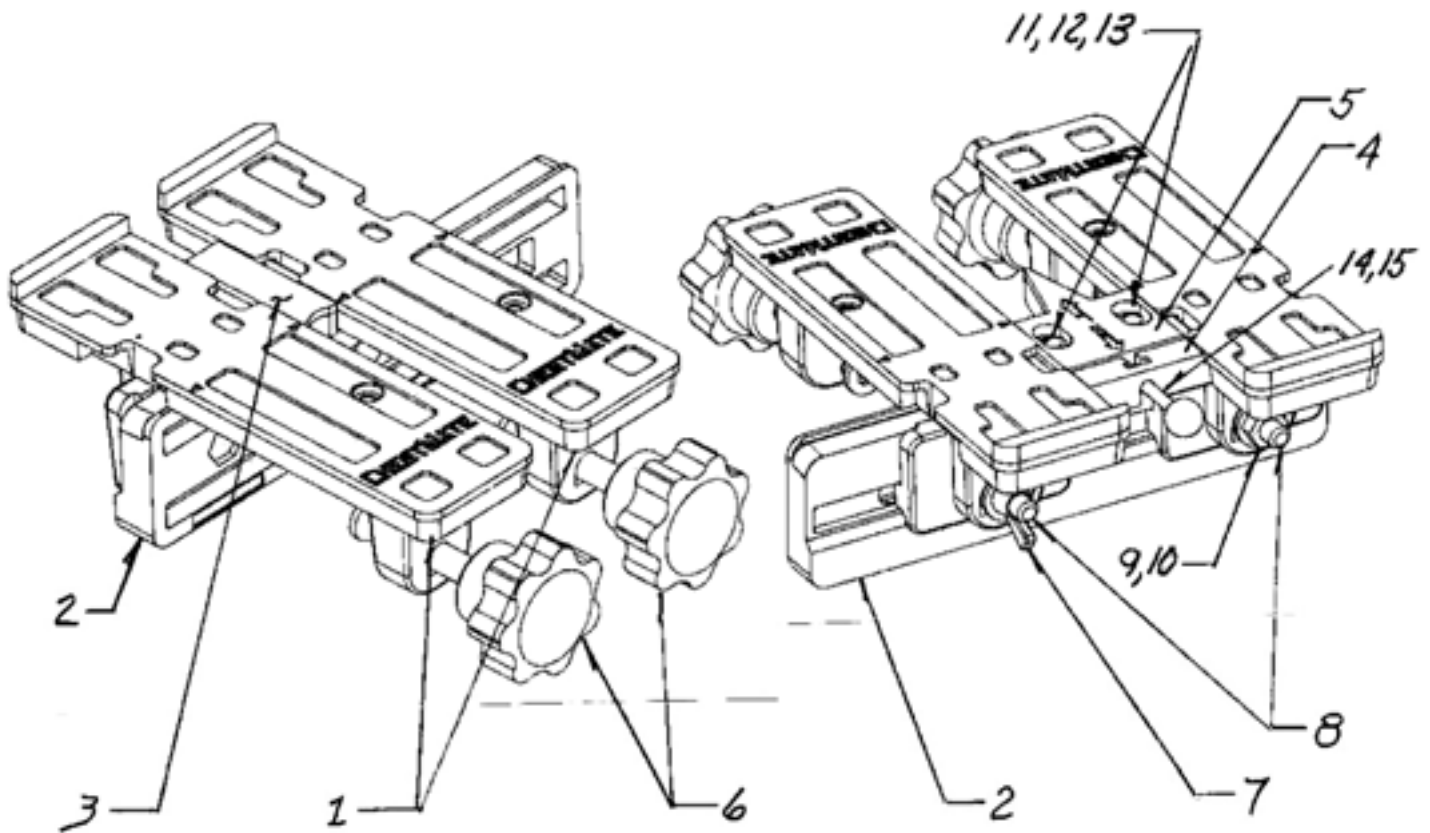
4 Set up as shown to clear away the unwanted "inside" material paying attention to the corners of the pins.



6 When the first end is complete it should look like this, and is ready to fit to a tail board. Finish up the opposite end and the second pin board in the same manner. Then complete the second pin board.



Jig Assembly and Parts List



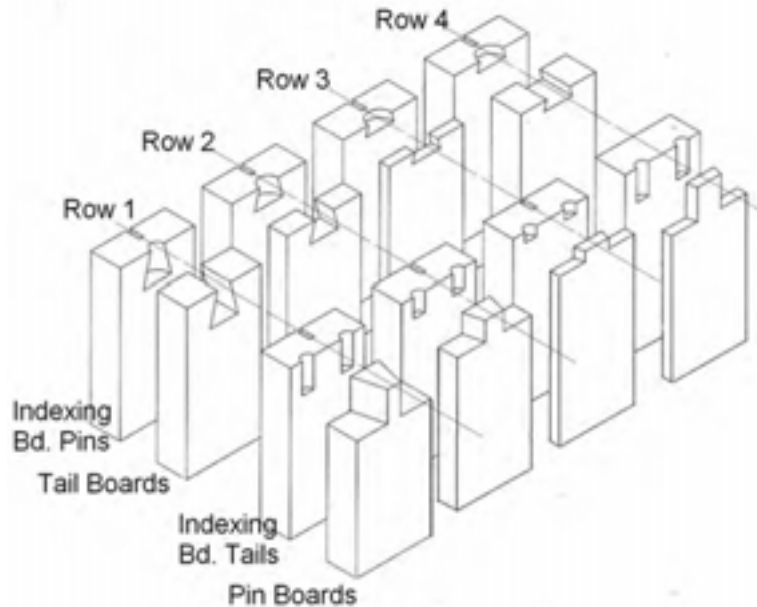
| Assy.# | Name | Qty. | Part Number |
|--------|----------------------------|------|-------------|
| 1 | Base | 2 | P3901 |
| 2 | Rear Bar | 1 | P3902 |
| 3 | Tail Insert | 1 | P3903 |
| 4 | Base, Tail Insert | 1 | P3904 |
| 5 | Pin Insert | 1 | P3905 |
| 6 | Front Knob | 2 | P3906 |
| 7 | Rear Knob | 1 | P3907 |
| 8 | Hex Bolt 5/16-18 x 2in | 2 | P3908 |
| 9 | Hex Nut 5/16-18 | 1 | P3909 |
| 10 | Flat Washer 5/16 | 2 | P3910 |
| 11 | Rd. Hd. Screw 6-32 x 3/8in | 2 | P3911 |
| 12 | Nut 6-32 | 2 | P3912 |
| 13 | Washer 6-32 | 2 | P3913 |
| 14 | Rd. Hs. Screw 8-32 x 2 | 1 | P3914 |
| 15 | Nut 8-32 | 1 | P3915 |

Using Thinner Project Stock

Notes:

1-Understanding fully the instruction manual relative the use and safety of your ChestMate Jig is necessary in order to understand the intent of this page.

2-The illustration below is meant to only illustrate dovetail detail and the thickness of project stock. The illustration is not meant to suggest stock of very short lengths and widths can be held safely in the ChestMate Jig.



Regardless of what thickness project stock you use, the indexing board must **always** be a standard thickness of 13/16 inches.

The illustration above is shown as 14 degree dovetails. The 7 degree insert can be used as well. Both inserts must be used with your 5/16 inch diameter cutter for cutting the tail boards.

Row 1 shows standard 13/16 stock, illustrated in the owner' manual as well, being used.

Row 2 shows 1 / 2 inch stock being used, the depth of the cuts being slightly more than 1 / 2 inch.

Row 3 shows 1 / 4 inch stock being used, the depth of the cuts being slightly more than 1 / 4 inch.

Row 4 shows 1 / 4 inch tail stock used with 13 / 16 pin stock. The depth of the tail cut is 13 / 16 and the depth of the pin stock is 1/4 inch.

The number of different combinations of pins and tails is not limited to what is shown in Row 4.

The smaller the your project is, the more difficult it will be to mount your ChestMate Jig to it safely. Use common sense when defining these parameters. Safety first.

ChestMate Random Box Joint Accessory

Note: This instruction page alone will not suffice in understanding how to use the ChestMate Jig. It is only an extension of the PR-3900 Owner's Manual. The owner's manual shows how to safely and accurately use the jig. Understand everything in the manual in order to utilize this page. It is important to us that you understand fully the importance of securely mounting materials into a vice, the fabrication of an indexing story board and the mounting of it to the work board, the placement of the router relative to the jig and all other operational and safety issues mentioned in the manual before using the ChestMate with this accessory.

This instruction page will appear ambiguous if you have not experienced using the ChestMate making dovetails. The process is very similar.

Equip your plunge router with a 5/8 inch guide bushing and a 3/8 inch straight cutter.

- 1-**Make two indexing boards that will determine your pin and tail spacing. (1 ½ in. min spacing with the 3/4 insert and 1 in min spacing with the ½ insert) Mark your project boards relative to the stop you add to your indexing boards. (Page 4 of manual.)
- 2-**Assemble you accessory to the jig as shown. (Fig 2)
- 3-**Mount your pin board securely into a vice.
- 4-**Clamp your indexing board to your pin board. (Page 5 of manual)
- 5-**With a front back up board, clamp the jig to the pin board with the jig indexing tab in a slot. (Fig 2)
- 6-**At each indexing notch, router away material resulting in pins.
- 7-**If you have material remaining between your pins, refer to pages 11 and 12 of the manual for removing it. (Figure 1)
- 8-**Reverse the mounting of your accessory for cutting tails, using scrap wood. (Figure 3)
- 9-**Cut at least one slot that you can cut away from your scrap and test fit to your pin board similar to the process on page 8 of the owner's manual.
- 10-**If the fit is not acceptable, move the adjustment towards you to make the slot narrower and away from you to make it wider. Repeat the process until you have the fit you want. (Fig. 3)
- 11-**Set up to cut your actual tail board. (Figure 3)
- 12-**With experience using all your accessories, you can incorporate straight arrangements with dovetail arrangements at constant or variable spacing. Actual pencil layout is recommended first.

Note: When or if the jig overhangs the end of your work piece as shown in Fig 5 of Page 10, assure yourself it is mounted securely and will not tip when you place your plunge router on it.

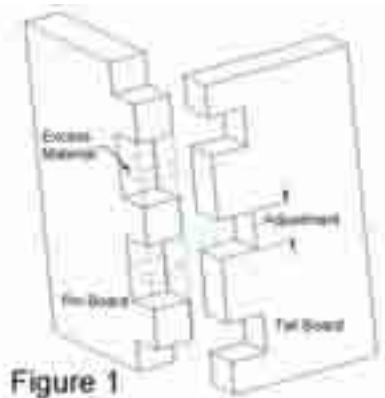


Figure 1

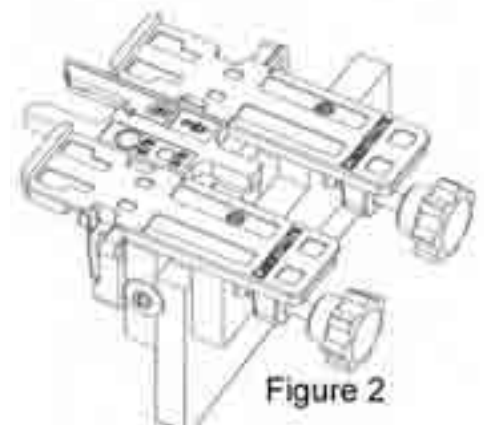


Figure 2

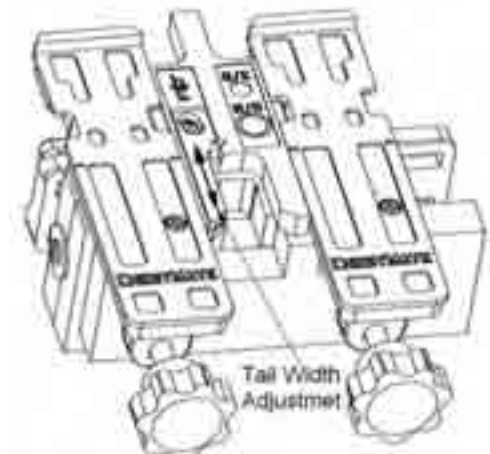


Figure 3

ChestMate Precision Box Joint Maker Accessory

Note: This instruction page alone will not suffice in understanding how to use of the ChestMate Jig. It is only an extension of the PR-3900 Owner's Manual. The owner's manual shows how to safely and accurately use the jig. Understand everything in the manual in order to utilize this page. It is important to us that you understand fully the importance of securely mounting materials into a vice, the fabrication of an indexing story board and the mounting of it to the work board, the placement of the router relative to the jig and all other operational and safety issues mentioned in the manual before using the ChestMate with this accessory.

Equip your router with a 5/8 inch guide bushing and a 3/8 inch diameter straight cutter.

Note: With a precision box joint, the tails (slots) must be only a few thousandths of an inch wider than the mating pins fingers (Fig 1). The adjustment for this is straight forward.

Note: Unlike the other functions of the ChestMate, an indexing board is not needed when using the Precision Box Joint Maker accessory. Indexing occurs with the key that you will insert. (Fig 2)

1-Insert the fraction key of your choice and tighten the adjustable guide down aligned to the correct fraction point. (Fig 2 & 4)

2-Securely assemble your accessory to the ChestMate jig. (Fig.4)

3-Clamp you're a scrap workpiece into a vice. Secure your ChestMate to your work piece with the indexing key up against the edge of the work piece (Fig 3). Include a front back-up piece of stock. Fig 4)

Note: When the jig overhangs the end of your work piece as shown in Fig 5 page 10 of your manual and Fig 5 of this page, assure yourself it is mounted securely and will not tip when you place your router on it.

4-Set your router on the jig and machine your first tail (slot).

5-Loosen your jig and lift it and re-set it with the indexing key falling into the slot you just cut.

6-Repeat three or four times.

7-Remove the jig and observe the widths of your fingers and slots. If the slots are too wide, locate the adjustable guide away from you. If they are too narrow, move it towards you. Repeat until the width of each appear to be the same. (Fig 4)

8-Cut your scrap work piece into several pieces that will allow you to fit one into the other. Determine if you want to accept the fit, or make the slots a little wider or narrower. When you have the perfect fit, start your project.

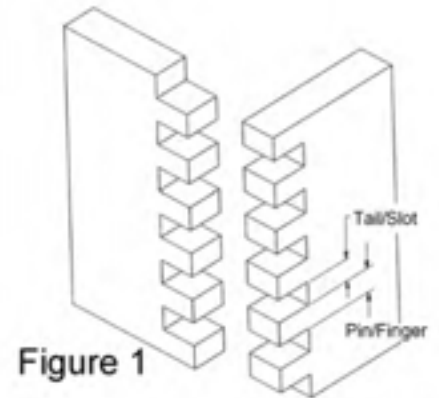


Figure 1

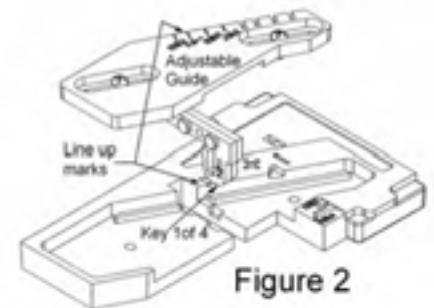


Figure 2

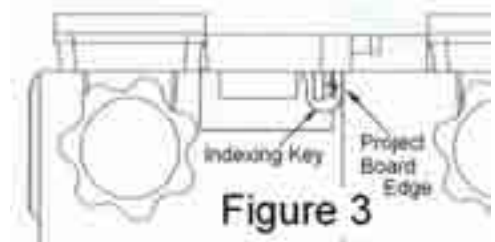


Figure 3

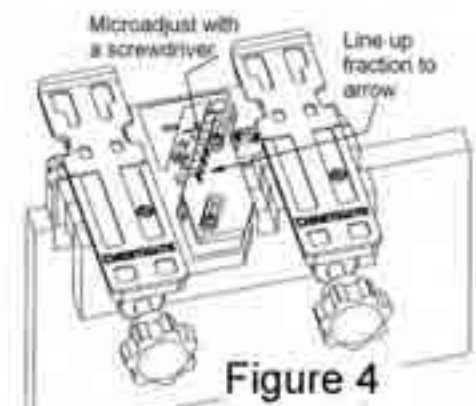


Figure 4

Doweling with the ChestMate Doweling Accessory

Note: This instruction page alone will not suffice in understanding how to use of the ChestMate Jig. It is only an extension of the PR-3900 Owner's Manual. The owner's manual shows how to safely and accurately use the jig. Understand everything in the manual in order to utilize this page. It is important to us that you understand fully the importance of securely mounting materials into a vice, the fabrication of an indexing story board and the mounting of it to the work board, the placement of the router relative to the jig and all other operational and safety issues mentioned in the manual before using the ChestMate with this accessory.

Equip your plunge router with a 5/8 inch guide bushing and a straight cutter matching your dowel diameter. (Most common standard dowels are 1/4 inch, 5/16 inch and 3/8 inch .)

- 1-Fasten the Indexing Screw to either of the two holes next to the guide bushing slot. (Figure 1)
- 2-Make one story board representing your dowel spacing, attach a stop and mark your project boards relative to the stop. (Refer to Figure 2 to and page 4)
- 3-Securely mount the Doweling Accessory to the ChestMate Frame. (Figure 3)
- 4-Secure your first board into a vice and clamp your indexing board to the board. Note your "front 1" mark relative to the stop. (Refer to Page 5 of manual)
- 5-Securely clamp the jig to the board with the indexing screw placed in a story board slot. Use a clamping board to protect your project board from damage. (Figure 3)
- 6-Loosen and slide the router guide, forward or back, over your hole location. Tighten. **Do no change the position** after the first hole you plunge. (Figure 3)
- 7-Set your plunge router onto the jig with the collar up against the end of the guide bushing slot you chose to set the indexing screw next to. (Figure 3)
- 8-Turn router on and plunge cut the dowel hole.
- 9-Relocate the jig for plunging the remaining holes.
- 10-Correctly set up your second board noting your "front 2" mark relative to the stop. (Figure 4)

Note: When the jig overhangs the end of your work piece as shown in Fig 5 of Page 10 of your manual, assure yourself it is mounted securely and will not tip when you place your plunge router on it.

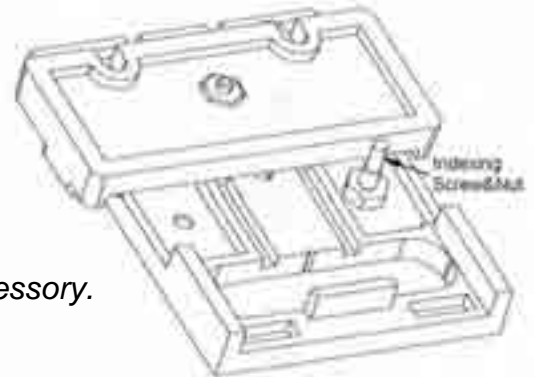


Figure 1

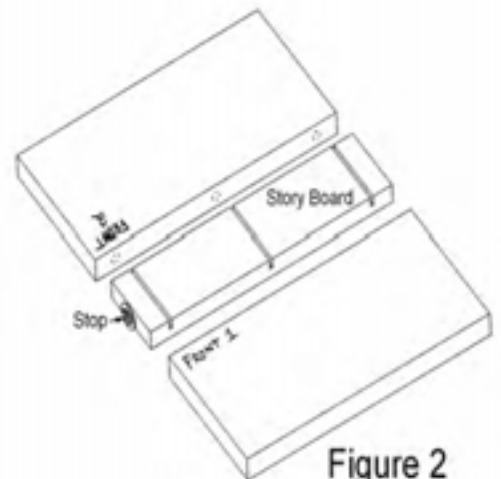


Figure 2

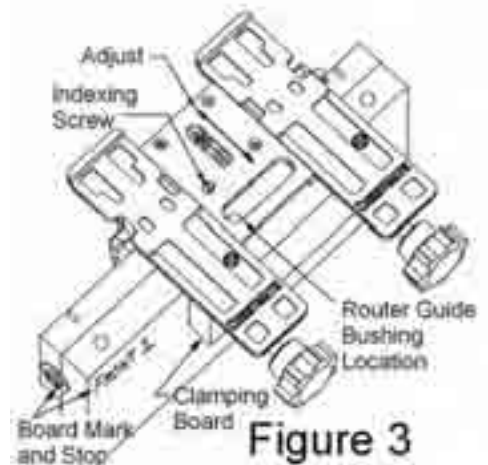


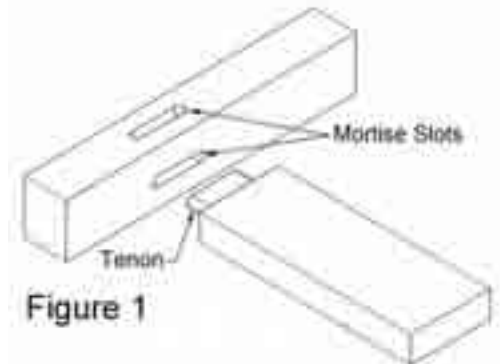
Figure 3

Mortising with the ChestMate Mortising Accessory

Note: This instruction page alone will not suffice in understanding how to use the ChestMate Jig. It is only an extension of the PR-3900 Owner's Manual. The owner's manual shows how to safely and accurately use the jig. Understand everything in the manual in order to utilize this page. It is important to us that you understand fully the importance of securely mounting materials into a vice, the fabrication of an indexing story board and the mounting of it to the work board, the placement of the router relative to the jig and all other operational and safety issues mentioned in the manual before using the ChestMate with this accessory.

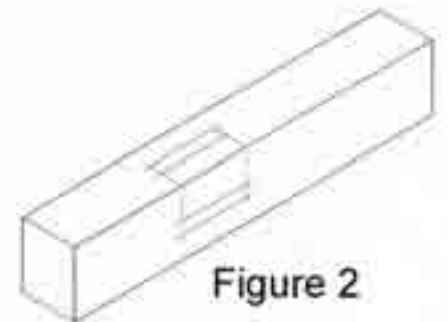
Equip your plunge router with a 5/8 inch guide bushing and a straight cutter, the diameter of matching your desired mortise width.

Note: The ChestMate Jig with the mortising attachment should be used only for making mortise slots and not tenons. It is not safe to use the ChestMate for making tenons. Tenons can easily be made with a table saw, a band saw or a router table. The edges of the tenons may be square, or rounded off to fit the full length of the mortise. (Figure 1)



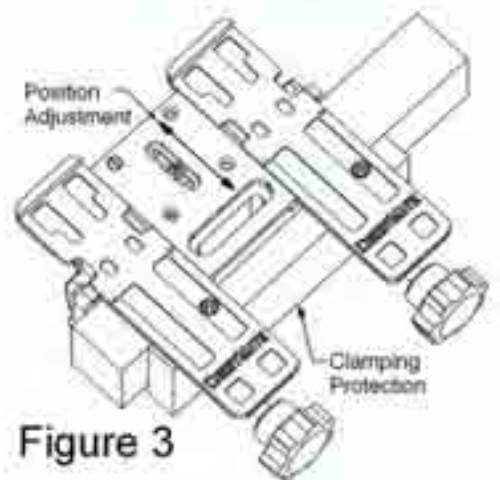
- 1- Layout on your stock the mortise slot locations (Fig 2). The ChestMate Jig will clamp stock up to 2 3/4 inches wide.
- 2-Mount your Mortising Accessory to your Jig. (Figure 3)
- 3-Clamp your workpiece **securely** in a vise or clamped down to your workbench.
- 4-Mount your jig to the work piece. (Figure 3)
- 5-Adjust the front to back position of the router guide slot. (Figure 3)
- 6-Loosen and slide the jig assembly so the left end of the guide slot will match the left end of your mortise layout.

Understand the relationship of your layout, guide slot, guide bushing and cutter. Practice on scrap first.



- 7-Tighten up the jig. Place the plunge router over to the left side of the guide slot. Plunge an eighth of an inch into the material and move the router to the right about 1/2 the length of your mortise layout. Repeat this until you have your required depth.
- 8-Loosen your jig and position the right end of the guide slot over the spot you want your mortise slot to end. Tighten up the jig. Position your router at the right of the guide slot and machine over to where your previous machining ended. This spot will be obvious. Repeat until you have your desired depth.
- 9-When your desired mortise slot is longer than the guide slot, simply move the jig along the length of your project board.

Note: When or if the jig overhangs the end of your work piece as shown in Fig 5 of Page 10, assure yourself it is mounted securely and will not tip when you place your plunge router on it.



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