

# MLCS PINS & TAILS HALF BLIND DOVETAIL JIG



**COMPLETE INSTRUCTION  
MANUAL & REFERENCE GUIDE**



**PLEASE READ BEFORE USING YOUR JIG.**

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## GENERAL SAFETY INSTRUCTIONS

It is IMPORTANT to read and understand all the information and procedures contained in this manual PRIOR to using your new jig. Failure to do so could result in serious injury. For safety, do not modify this jig or use it for applications other than those described in this manual.

Please review and adhere to any rules and instructions provided with any supplementary tools you plan to use with your jig.

- Dress for safety:
  - Safety equipment including safety glasses, ear protection, and a dust mask should always be worn during the use of power tools.
  - Never wear loose clothing or other items which can become tangled or caught in machinery, such as shirt sleeves, bracelets, watches, chains, rings, drawstrings, etc.
- Prevent electric shock hazards:
  - Don't touch grounded surfaces and don't use tools where moisture is present.
  - Power cords should be kept away from machinery in motion.
  - Do not change bits or make other adjustments until your tool is safely disconnected from the power supply.
  - Before starting your tool, make sure any adjusting keys or wrenches are safely removed.
- NEVER use power tools when tired or using alcohol or medications.
- DOUBLE-CHECK that all parts are adjusted properly, tightened, and secured prior to working.
- INSPECT for damaged parts and always make repairs before working.
- DO NOT ALLOW visitors and children to enter the work area.
- STAY NEAT/STAY SAFE: Avoid clutter and obstructions in your work area.
- NEVER remove the template unless the router has come to a complete stop.
- NEVER use excess force to push the router through the workpiece.

**TOXIC MATERIAL SAFETY:** Some woods and wood products can be irritating or toxic when inhaled or touched. Get safety information from the material supplier and follow all recommended safety practices.

## HOW TO ASSEMBLE YOUR DOVETAIL JIG:

- 1) Unpack, sort, and identify all parts as shown in the parts diagrams included in this manual. A standard screwdriver, Phillips screwdriver, and a 10mm open-end wrench are needed for assembly.
- 2) Determine which joint you will be making. Then, use Pan Head Edge Guide Screws and Washers, to install the needed Edge Guide onto the Jig body. Use Edge Guide #1 for Half Blind and #2 for Rabbeted Half Blind Joints. **Edge Guides are paired and marked “R” for Right and “L” for Left.** The edge guide’s semi-circle should be positioned next to the threaded stud that extends from the jig body.
- 3) Insert and thread the #10 Hex Head Bolts (M6x50) from underside into the Rivet Nut on front side of Jig Body to support the Template Brackets. Put No.3 Lock Nut (M6) and No.4 Brass Knurled Nut on the bolt. Tighten until secure then do the same for the other side.
- 4) Attach the Clamping Bars with the #10 Hex Head Bolts (M6x50) in the same manner as the Template Brackets in the previous step. Place the following items onto the bolt in order: #6 Spring, Clamping Bar, #8 Nylon Spacer, #9 Clamp Knobs. Attach the Long Bar to the top and the Short Bar on the front.
- 5) With Phillips Head Hex Screws, secure the correct template to the Template brackets. The template is installed on the jig by aligning the fingers of the template bracket over the M6-1 studs between the lock nut and brass knob on the front of the jig.

### **REFERENCE GUIDE and SPECIFICATIONS:**

- Edge Guides: This 12” Dovetail Jig comes complete with 2 Edge Guide Sets—one set for Half Blind and one set for Rabbeted Half Blind Dovetails.
- Guide Bushings: Made for use with routers that accept Porter Cable-style bushings (as used on PC, Dewalt, Black & Decker, and many other popular routers). Adapters can also be purchased to allow most other routers to work with these bushings.
- Router Bits: Always used carbide-tipped bits for best results.
- 1/2” Dovetail Template: For the construction of 1/2” half-blind or rabbeted dovetails for use when making drawers or large boxes. For use with a 5/8” OD guide bushing and lock nut. Use a 1/2” x 14 degree dovetail bit with this template.
- Stock Thickness as follows:
  - Fronts: Maximum thickness of 1”, Minimum stock thickness of 5/8”
  - Sides: Maximum thickness of 1”, Minimum stock thickness of 1/2”

## SETTING UP:

### THE JIG

- 1) For stability, the dovetail jig should always be attached to a workbench or table. However, for ease of movement and storage, many woodworkers prefer to mount to a sub-base that can then be clamped or bolted to any surface.
- 2) For direct attachment, plot the position of the pilot holes for the screws as follows: After drawing a center line, mark holes in the following positions:
  - a. For the front of the jig, drill 1/8" pilot holes 3/16" down, spaced 13-3/4" apart, positioned evenly spaced from the center (6-7/8" to the left and 6-7/8" to the right of the center point).
  - b. For the top, position the two 1/8" pilot holes 15" apart, evenly spaced from the center (7-1/2" to either side of the center point) and 5-7/16" from the edge of the base.
  - c. Screw two #10 x 1/2" pan head screws into the top holes just enough that the jig will position securely underneath the head. After sliding the jig beneath the screw heads, insert and tighten the other two pan head screws to the front holes.
- 3) You can use a piece of hardwood, plywood, or MDF about 36" x 10" x 3/4" for a sub-base. Mount a 36" x 1-1/2" x 3/4" face to the edge of this piece which will hook over the front of your workbench. Drill pilot holes as previously described and screw on the jig. You can now securely connect your jig to your workstation with clamps or bolts at both ends of the base.

### THE ROUTER

- 1) Any router with a 5/8" guide bushing can be used. For ease of operation, use a plunge router with a fine adjusting knob (or install one prior to working) for ease in bit adjustments.
- 2) Remember, bit height adjustments should be measured from the base plate rather than the guide bushing, as most guide bushings are recessed slightly in the base. The proper bit depth for 1/2" dovetails is 5/8".
- 3) Make only small adjustments of the bit height because most work involves the cutting of two workpieces at the same time. Hence, any adjustments will be twice as large in your finished piece.
- 4) Be sure your router collet does not lock in a position where it will contact the guide bushing.

- 5) **SAFETY NOTE:** Be careful when setting your router down between use as small router bits can be fragile. You can use a small block with a hole cut out for the bit and guide bushing to use as a safe stand for the router when not in use. The hole in the block should be just enough to fit the bushing and bit.

## SET UP BOARDS

Creating a reference board for proper placement of the edge guides and templates when making template changes can make set-up easier and faster. These boards will be used over and over again, so take special care for top accuracy and store in a safe place when not in use. Using a sharp knife to cut the layout marks will ensure that they are precise and long-lasting. Use of the boards will be detailed later in this manual.

### **Constructing Boards for 1/2" Blind Dovetails**

- 1) Choose a piece of flat stock at least 6" wide by 8" long and square it up.
- 2) Mark a line 3/16" from each edge along the long edges of the board for aligning the edge guides.
- 3) Mark a line 19/32" from the end for alignment of the templates.



### **Constructing Boards for 1/2" Rabbeted Dovetails**

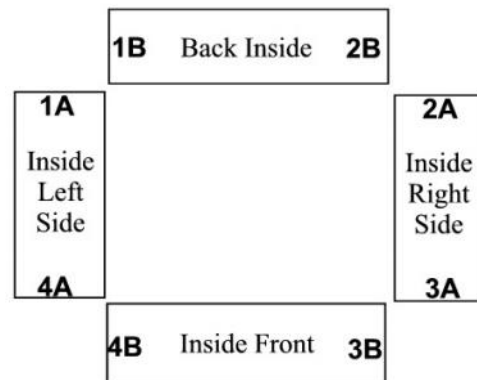
- 1) Edge Guide lines should be 9/16" from the long sides of the board. Follow all other procedures as in Half-Blind Setup Above.



## PREPARING YOUR STOCK

- Planning in advance and having a step-by-step procedure laid out beforehand will save time, frustration, and costly errors.
- While you can use both sides of the jig to make dovetails, don't try to rout more than one set of stock at a time.
- When routing on the jig, stock should be laid inside-out. Careful marking and layout of your stock lets you determine a routing order that works best for you. Doing so also allows you to arrange the wood properly to expose the best grain and color in your finished work.

### *Proper Layout for Drawers or Boxes*



- Clearly mark and label (on the inside face) pieces for left, right, front, back, outside, and inside. Outside faces are always oriented TOWARD the jig.
- 3/4" for the drawer front and 1/2" for the drawer sides is the standard stock size for drawers made with 1/2" dovetails. To join the drawer back with dovetails, the back and front must use the same size stock. A minimum of 5/8" thick stock for drawer fronts is recommended for maximum strength of the dovetail joint.

### **For Symmetrical Dovetails**

The jig's design ensures that front and sides of the piece will match for assembly. However, this may or may not provide a symmetrical joint (with pins and tails equally divided at top and bottom), depending on your stock width. You can adjust the position of the guide relative to the template in order to even out the pins and tails if you prefer to do so. Some trial and error is required (on scrap stock) but the proper alignment for your stock size can be determined visually.

## **GETTING STARTED**

- Test all setup on scrap wood before beginning your work on quality stock.
- Confirm that your stock is well-squared and of consistent thickness to ensure accurately matched joints.
- Even pressure is essential across the full width of stock when under the clamping bars. If working with narrow stock, you should use a piece of stock of equal thickness under the bar at the far end.
- Bowing of wood can be reduced using the clamping bars. However, for best results, use wood that is flat to start.
- Precise jig setup is essential. Use a quality steel rule marked at least in 1/32" increments when setting your jig.
- When setting up the template, you can get an accurate basis for front to back measurements with a flat square board mounted level with the template and secured in the front clamp.
- After you have successfully set up your jig, use a piece of scrap stock, mark your reference lines and save for speedy future setup.
- Sharp router bits free of sawdust or pitch buildup will make for the tightest joint fit.

- Do not force the router bit into the wood. The bit may break and damage stock and can even cause personal injury.
- NEVER remove the router bit from the jig until it has stopped completely.



## ROUTING HALF-BLIND DOVETAIL JOINTS



### Set-up

- 1) Connect the #1 Edge Guides to both sides of the jig, but DO NOT fully tighten the screw. Insert a scrap piece under the front clamp bar just above the top surface of the jig and away from the edge guide. Place a piece of scrap stock under the front clamp bar and secure with the two-wing knobs.
- 2) Position the setup board beneath the top clamp, firmly against your scrap stock. Then, put the template on top and twist the brass knob, securing the template mounting bracket fingers firm against the lock nut. The edge guide setup line should align with the left side of the first template slot. You may have to make some adjustments before this is aligned. Then the top clamp must be tightened but do not allow the setup board to move.
- 3) The brass knob must be loosened. Then, align the back edge of the template slots with the setup board's template setting line by loosening the lock nuts with a 10mm open end wrench.

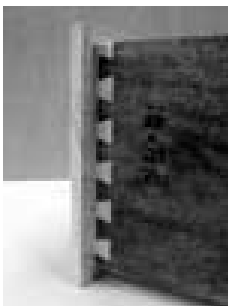


- 4) Remove the template.
- 5) Firmly position the edge guide next to the setup board and screw into place.
- 6) Follow the same steps as above to attach the other side of the jig.
- 7) The setup block can now be taken out and saved for use on future projects.
- 8) Be certain that stock pieces are level with each other and firmly against each other and the edge guide whenever you make a joint. All stock should be clamped firmly with the template flat on top, locked into place with the brass knobs.



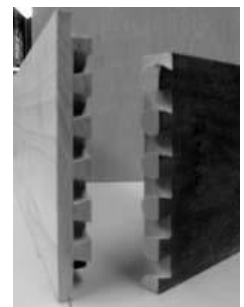
### Routing

- 1) Set the router bit depth to 5/8". **Make sure you measure from the router baseplate, not the template guide.**
- 2) Make a light pass from right to left across the stock's front edge. In this way, you can avoid chipping when routing between the template fingers.
- 3) Working from left to right, rout between the template fingers. Make a second pass if needed to ensure that the fingers and slots are clean.
- 4) NEVER remove the router bit from the jig until it has stopped completely.
- 5) Take the stock from the jig and make sure the joint fits snugly. If you have a problem, make any necessary adjustments and run the joint again. See "Quick Tips" later in this manual.



### **ROUTING RABBETED DOVETAIL JOINTS**

Half-Blind Rabbeted Dovetail Joints for use on drawer fronts are constructed very much like half blind dovetails. However, the drawer front and side must be routed one at a time. To allow for the rabbet, the drawer front will hang over the jig. You will also need a different set of setup boards.



## Drawer Front Construction

Drawer front stock should be at least 3/4" wider and longer than the drawer you desire and made with stock 3/4" thick or greater. Rabbeted half-blind dovetails can be a maximum 10-3/4" deep.

Take a rabbeting bit with a bearing and cut a 3/8" wide by 7/16" deep groove around all four sides of the inside face of the drawer front.



## Setup

- 1) Use the Setup board for 1/2" rabbeted dovetails and set the #2 Edge Guides and templates as when making half-blind dovetails. However, this time, the edge guide should align with the inside edge of the second slot—not the first as before.



- 2) Firmly position the edge guide next to the setup board and screw into place.



- 3) Construct a Gauge Block in order to align the drawer front with the correct overhang. This block will need a 3/8" x 3/8" rabbet cut in one of its edges.

- 4) The template should be positioned on the jig without tightening the knobs. Move the drawer front under the top clamping bar and template, flush with the left edge guide. The template must be lying flat on the drawer front before tightening the brass knobs.



- 5) The gauge block should be placed beneath the front clamp bar and firmly against the left template and edge guide before clamping it down. Move the drawer front flush with the Gauge Block to allow the proper 3/8" overhang. Turn the knob to firmly position the drawer front beneath the top clamp bar.
- 6) Remove the Gauge Block after loosening the front clamping bar.



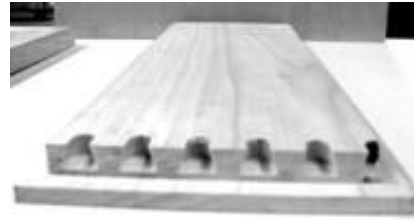
*Template removed to show proper positioning of drawer front and gauge block*

## Routing

**REMEMBER** to rout the drawer front and sides separately.

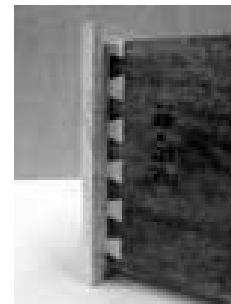
### ***Drawer Front***

- 1) Install the appropriate size guide bushing on your router subbase and insert the correct bit into the collet, setting the bit height at 5/8”.
- 2) Rout in and out of each finger of the template moving from right to left across the front of the drawer.
- 3) Take the drawer front out of the jig.
- 4) The Gauge Block setup and routing steps should be repeated for each drawer front and on each side of the jig.



### ***Drawer Sides***

- 1) To lessen tear-out, replace the drawer front with scrap wood of the same thickness beneath the top clamping bar.
- 2) Position the drawer side below the front clamp bar flush with the scrap stock and edge guide. →
- 3) Use a square to check for level and clamp the side piece down.
- 4) Rout as you did when making half-blind dovetails, repeating on each side of the jig.
- 5) After taking the side from the jig, ensure that it fits with the drawer front and make any necessary adjustments.



***TIP: If you'd like to make future setup faster and easier, the setup board can be routed in the same position as the drawer front and then used in the future to set the bit height.***

## **MAKING IT ALL FIT: QUICK TIPS for RESOLVING COMMON ISSUES**

### **Loose Joint:**

- ✓ Cutting depth may need to be increased a bit
- ✓ Ensure that you are using the correct guide bushing
- ✓ Inspect guide bushing, bit and template for excess wear

### **Tight Joint:**

- ✓ Cutting depth may need to be decreased a bit

### **Front Overhanging Side:**

- ✓ The distance from the front edge of the jig to the back edge of the slots on the template (the 19/32" dimension) should be made smaller.

### **Side Overhangs Front:**

- ✓ The distance from the front edge of the jig to the back edge of the slots on the template (the 19/32" dimension) should be made wider.

### **Sides and Front are Offset:**

- ✓ You may be using the wrong edge guide—double-check.
- ✓ Be sure the template was referenced off the correct side.

### **Joint Raised from Side to Side or in the Middle:**

- ✓ Double-check that the end cuts of stock are square.
- ✓ Double-check that stock is firmly positioned against the edge guides.
- ✓ Ensure that stock is not cupped or bowed and of consistent thickness.

### **Cross-Grain Tear Out:**

- ✓ Use a very sharp marking tool at the same height as the cutter to scribe the stock ends.

### **Clamping Bar will not reach to clamp thicker stock:**

- ✓ The nylon knob spacers can be taken out.

### **Thin Stock cannot be clamped securely:**

- ✓ Additional spacers can be used.

PART No.	DESCRIPTION	QUANTITY
1	BASE	1
2	RIVET NUT (M6)	8
3	LOCK NUT (M6)	2
4	BRASS KNURLED NUT	2
5	WASHER (DIA. 6MM)	4
6	SPRING	4
7	FRONT CLAMP BAR (SHORT)	1
8	NYLON SPACER	4
9	CLAMP KNOBS	4
10	BOLT (M6×50)	6
12	TEMPLATE BRACKET	2
13	TEMPLATE (COMB)	1
14	TEMPLATE RETAINING SCREWS (M5×5)	4
15	SCREWS (M6×10)	2
16	#2 RIGHT EDGE GUIDE	1
17	#1 RIGHT EDGE GUIDE	1
18	#2 LEFT EDGE GUIDE	1
19	#1 LEFT EDGE GUIDE	1
20	TOP CLAMP BAR (LONG)	1

