

Route-R-Joint Junior

Precision Joinery System



Make high precision joints for drawers, boxes and furniture easier than ever before with the **Route-R-Joint Junior** from Woodline USA.



Woodline USA's **Route-R-Joint Junior** system comes with four different joint templates. Interchangeable templates allow switching from one joint to another in just a few easy steps.

Amateurs, children and professional woodworkers will enjoy the ease of use, safety and simplicity of the **Route-R-Joint Junior** system from Woodline USA.

No more complicated setups, no having to re-learn complex setups after a few days out of the shop. Just put in a bit, install the guide bushing, and clamp the wood in the jig and **PRESTO** great joints every time!



Woodline USA's new Route-R-Joint Junior features high precision laser cut templates!

The kit consists of the following components:

Heart template RJTJR3	1	5/16 Fender washer	2
Small keys template RJTJR4	1	Knob 5/15-18	2
Locks template RJTJR7	1	Aluminum Angle	1
Pin and Crescent template	1	Plywood sub-plate	1
End block spacers	8	#8 pan head screws	3
#6 x 5/16 self tapping screws	8	Cross Bar Extrusion	1
No-slip sand paper strip small	4	Slip Bushing	1
No-slip sand paper strip large	1	Standard Bushing	1
T-bolt 5/16 x 3"	2	O-ring for bushing nut	1
Springs	2		
Gauge Block	1	3/16 Spiral bit WL-1002S-ES	1

This is the back view of a fully assembled **Route-R-Joint Junior** with the heart template installed.



Assembly Instructions

Template assembly:

Each of the four templates requires installation of end blocks and sandpaper prior to use. Note the end blocks can only be installed one way correctly. The holes are not centered, the larger hole must line up in both the end blocks and template. Each template has a recessed pocket cut in it. End blocks are mounted on the top face of the template with the recess on the opposite (bottom) side.

Place one of the end blocks on each end of the template. Note: each template has two small slots on each side indicating where the edge of the end blocks should fall. Align the end blocks with the slots and secure in place with two number 6 x 5/16" self tapping screws. **Caution, do not over tighten the screws.** Only tighten the screws enough to hold the end blocks in place. Repeat for the other end of the template.

Small sandpaper strips are placed in the center of each template. The sandpaper goes on the same side as the end blocks. Center the sand paper strip on the area between the templates be careful not to overhang the template with the sandpaper.

The strips are self-adhesive, remove the backing paper and stick it to the center of each template. Your sandpaper color may vary from the pictures

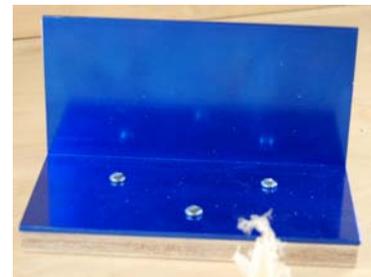
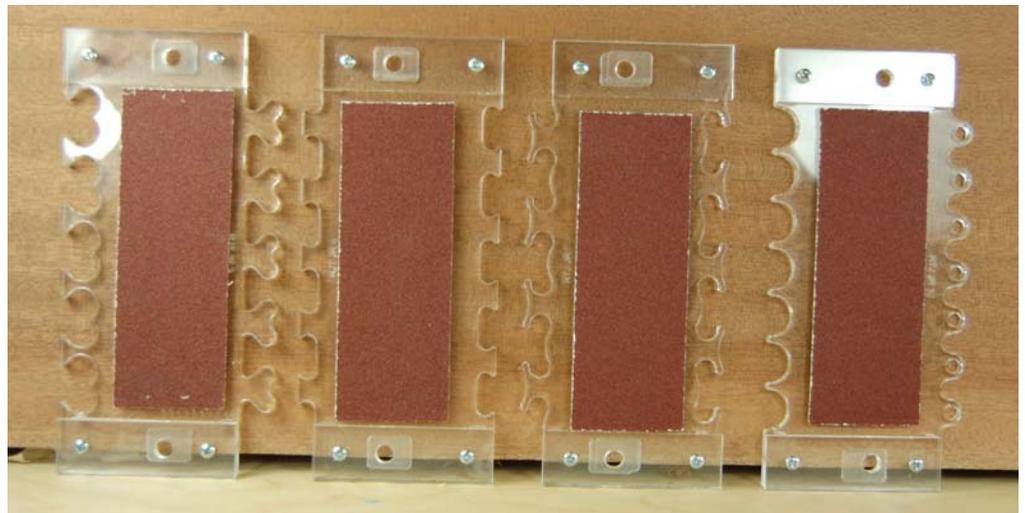
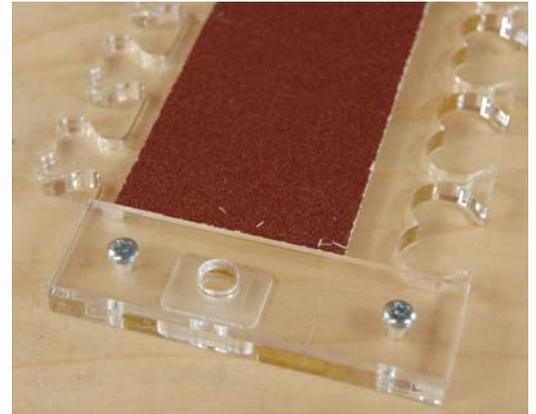
Repeat the above steps for all templates.

Fence assembly:

1. Mount the 1/2" plywood sub plate to the aluminum angle with 3 #8 x 1/2" screws. The edge of the plywood must align with the outside edge of the aluminum angle as shown. If you plan to work with mainly 3/4" thick material, you may want to replace the sub-plate with a piece of 3/4" thick material to prevent accidentally hitting the aluminum fence with the router bit.

Peel and stick the larger piece of self-adhesive sandpaper to the front side of the aluminum angle fence. Do not allow the sandpaper to extend over the wood at the bottom of the fence.

Completing the assembly:

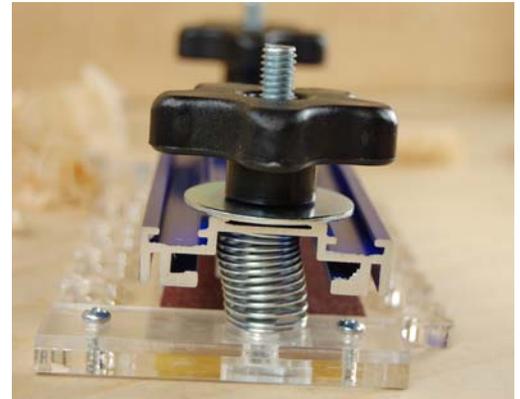


Choose the Pattern for the joint you wish to make. Insert the two 5/16 inch T. bolts through the template so that the head of the T. bolt goes into the recess cut in the bottom side of the template. Place the two springs over the T. bolts on top of the end blocks.

The clamp extrusion has a piece of material screwed to the center of it. The material must face the template. Place the extrusion over the T. bolts and compress the springs. Place a 5/16 inch Fender washer over the T. bolt and install the knob.

Jig is now completely assembled.

When changing to another joint, reverse the above procedure and reassemble using a different template.



Installation a bushing in router table

1. Using the supplied O-ring as a lock washer, secure the bushing in the router table plate. Use either the “Standard” bushing or the slightly (.005”) smaller “Slip” bushing if a slightly looser fit is desired. The variation in individual router performance makes it impossible to say that you always use one bushing versus another. Use the slip bushing if your joints are too tight with the standard bushing. If you have large gaps make sure you are using the correct bit. All joints use a 3/16” straight router bit (WL – 1002S-ES). If your joints are too loose you can tighten them by wrapping a small piece of clear tape around the standard bushing. It only takes a couple of loops to make a difference.



Bit must be centered in bushing.

2. There must be NO lateral movement in the bushing. If the hole in your router table is larger than the top lip of the bushing then the bushing WILL move. No amount of tightening the brass nut will prevent it from moving due to vibration during routing. Uneven gaps and poor fitting joints may occur if any movement is allowed. If you have movement, simply wrap the upper lip of the bushing with clear tape until the movement is completely eliminated. Insert the bushing and trim any extra tape flush to the table top with a knife. Secure with the nut and O-Ring.

The bushing should be as close to centered as possible or the joint may not fit properly. Gaps or poor fit may result from an excessively off center bushing. In some cases the bushing can be damaged by an off center router bit. Adjust the position of the router base plate or bushing center if required to properly center the bushing. If you are not able to completely center the bushing you may still be able to make acceptable joints if you are careful. One method to minimize the effect of an off center bushing is to keep the jig in the same relative plane as the joints are made. Example; if you are moving from left to right (3 o'clock to 9 o'clock) then do not rotate the jig relative to the bushing as you are cutting. When you make the mating parts move the jig in the same relative plane. Do not rotate around an off center bushing as it may leave gaps in the joint.

Woodline USA sells a tapered centering pin (not included) to aid in centering the router to the bushing. The tapered pin is inserted through the bushing into the router and the router lowered to draw the tapered portion into the bushing. The tapered portion will cause the bushing to be centered and the holes for mounting the router can be marked and carefully drilled. **DO NOT TURN THE ROUTER ON WITH THE CENTERING PIN INSTALLED.**



Centering pin is useful for centering bushing.

If you are installing your router for the first time you can find instructions at Woodline.com for a method of installing the router that will assure the router is properly centered.

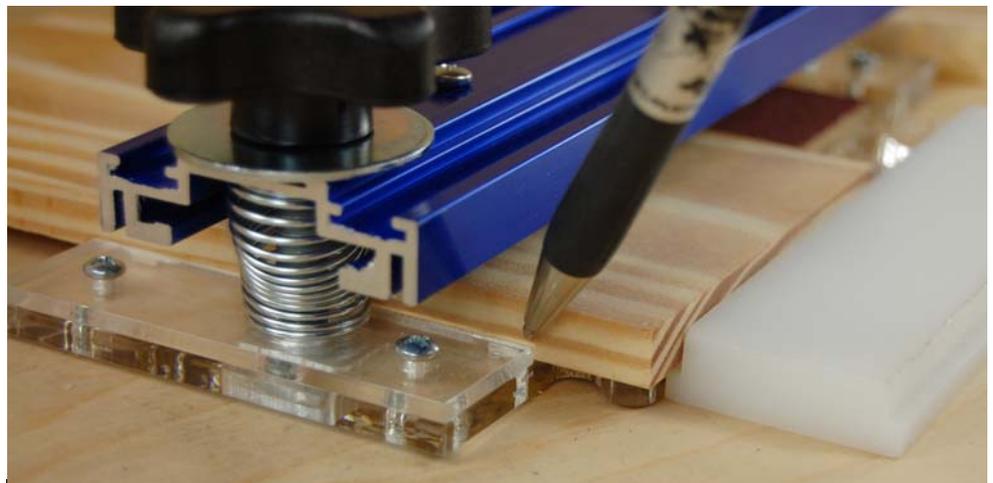
General Overview

**READ ENTIRE INSTRUCTIONS FIRST!
INJURY MAY RESULT IF DIRECTIONS AND CAUTIONS ARE NOT FOLLOWED.**

The *Route-R-Joint Junior* system will produce precision joints in a variety of patterns. The system uses a guide bushing to limit the router travel relative to the material. Templates guide the material to produce the desired pattern. Two guide bushings are supplied with the *Route-R-Joint Junior* system.

The joint spacing is fixed when using the *Route-R-Joint Junior* system. The centering of the material can be accomplished two ways.

1. Select a material width that is a multiple of the joint spacing. This is easily accomplished by using the template as a measuring device. Set the material up against an end block and select a width that falls within the center of one or more template patterns as shown. A larger width can be used and the parts trimmed on a saw to fit. Joints up to 6" wide can be accommodated.



Rabbet in gauge block sets

2. If the material width will not accommodate a convenient division of joints, you can move the material away from the end block and center the material over the desired template protrusions. A convenient method to prevent tear out is to use an additional wood piece inserted as a spacer

between the material and the plastic end block. Use the same spacer when cutting the piece using the vertical fence.

Place the gauge block firmly against the template fingers and place the material on top of the jig and against the gauge block then tighten the knobs on the clamp bar. In the picture shown on the previous page, the gauge block is used to set the overhang of a piece being cut horizontally. The same technique is used to set the overhang of a vertical piece.

Order of the joints to make a box

The four joints required to make a box must be done with the correct orientation to each other or the joints will not fit properly.

Draw a reference mark on the edge or side on each piece of wood. The reference side should always be against an end block. This will assure each side is properly referenced during assembly.

Usually the pieces laying flat are cut first. Place the reference side against the end block and position the board using the gauge block as shown. When the cut is complete, turn the part end for end keeping the same side against the end block and repeat the cut. Do this twice for both sides of the box.

When cutting the ends of the box with the vertical fence, mark the reference side and the side of the board that will be the inside of the finished box. The board is placed with the reference side against the end block and the inside of the finished box away from the fence. Make the first cut then remove the board and rotate it to the other end block keeping the inside face away from the fence. Make the second cut and then repeat for the second board.

PATTERN DOVETAILS

HEARTS, LOCKS, SMALL KEYS AND PIN AND CRESCENT

READ GENERAL INFORMATION FIRST!

Heart shaped joints like all the others are cut using a straight router bit and the RJTJR3 Heart template.

Assemble the jig with the heart template and tighten the locking knobs. Do not over tighten the knobs. Excessive tightening may cause the jig to bow and may result in poor joint quality and or damage to the jig. Tighten the only enough to hold the wood firmly in place.

Tails are typically the male portion of the heart dovetail. To produce a joint as shown, clamp the material to be cut into the jig using the gauge block to set the amount of overhang as shown in Figure 19 and 20.

Hearts are cut with either the 5/16" (standard) bushing or the undersized bushing. Select the undersized bushing (slip) if the joint fits to tightly when using the 5/16" bushing.

Install a 3/16" spiral router bit (WL-1002S-ES). MAKE SURE THE BIT IS TIGHT IN THE COLLET AND CENTERED IN THE BUSHING. Set the bit height to the thickness of the material when clamped in the template. The bit should just barely go through the top of the wood.



Heart Joints made half blind.

Move the jig with material attached against the bushing and bit so the material is cut to the shape of the template. Blow the sawdust away and make multiple passes to assure all material is removed. If dust or chips are trapped against the material it may result in poor fitting joints. Make a final finishing pass.



If a flat joint is desired, the mating part can be cut using the pin template in a similar fashion. If a 90° joint is used as shown, install the vertical clamping fence and clamp the material against the fence and up against the end block as shown. Use the gauge block to set the amount of overhang when positioning the vertical fence.

You should not change the height of the router bit. Route the female portion, light cuts removing only a small amount of material will produce better results than trying to “hog” off material all at once. Before removing the wood from the jig, check to assure the pattern is fully cut into the material. Make additional passes if required to assure complete cut. The joint is complete when no more wood can be removed.

You should not change the height of the router bit. Route the female portion, light cuts removing only a small amount of material will produce better results than trying to “hog” off material



OTHER PATTERNS

The system can produce joints in a variety of patterns. The method of cutting each is identical to the heart joint shown in previous pages with some small exceptions.

Pin and Crescent joints are easy to make. Route the pattern without the holes. Glue the joints together and then take the template and place it over the joint aligning the template with the joint. Use a pen or a vex bit to mark the center of the holes and remove the template. Drill holes in the joint with a brad point drill. Drill them deep enough to go into both boards. Glue in a plug or dowel. Plugs made from a matching end grain wood will make the joint appear as if the plugs were part of the original board.

It is possible to use the vertical fence with either template and thus make either portion of a joint the tail or the pin. Imagination is the only limiting factor when creating joints with the system.

WOOD Limitations

MAXIMUM THICKNESS

Wood thickness limits are determined by the bit being used. The 1002S-ES 3/16 straight bit will cut material up to 3/4” thick. Go slow and try not to remove too much material at one time. When working with hard woods, go especially slow and take light cuts. Heavy cuts will cause chatter which will result in poor fitting joints or broken bits and possible destroyed bushings. The limiting factor is the board cut in the laying down position. Boards cut against the vertical fence can be of greater thickness since they are not cut all the way through.

MINIMUM THICKNESS

The minimum thickness will vary with the joint selected. If a joint is desired to be half blind then the board cut vertically must be large enough to conceal the joint an example of this is the RJTJR3 Heart Joint. The piece cut lying down can be as thin as veneer but the piece cut using the vertical fence must be 3/4” thick to completely enclose the joint.

Three Dimensional Joinery

A variety of very attractive joints can be made by varying the wood thickness and the depth of cut. By raising the bit higher than the wood thickness when cutting the end of a vertical board, the resulting joint will set deeper in the cut than if it was flush. This can be used to make an attractive “sculpted” joint and when sanded with a flexible mop sander can produce a very unique and desirable look.

Using wood that is too thin to fully conceal the joint will result in the tail of the joint protruding through the mating board. We call this three dimensional joinery. The piece extending can be sanded or cut off to form an almost unlimited variety of joints. HOWEVER, it will also cut into the bottom board of the jig. This board is intended to be sacrificial and may need to be replaced with a thicker board depending on the way you are cutting your joints. Be careful not to hit the aluminum fence or the sandpaper with the router bit. It may cause damage to the bit and or jig.

End to End of “Flat” Joinery

Joints can be made end to end. The fence is not used and both pieces are cut lying down. Joints cut this way may not appear as precise as 90 degree joints but with glue up and sanding they are usually quite nice.

Troubleshooting your joints

Symptom	Possible Cause/Solution
Poor fitting joint. How the fit is “poor” makes a difference in the likely problem.	<ul style="list-style-type: none"> • Bit not centered in bushing. Center bit. • If still tight use undersized bushing. • If joint fits in some places and not in others, the bushing may be moving. The brass nut can not be tightened enough to prevent moving in a poorly fitting bushing. Try wrapping the bushing upper lip with tape to make it fit the table properly. Trim off excess tape once installed • Excessive run out in router. Some routers may have excessive run out. Clean collet or try another router. • Joints too loose, use standard bushing if still too loose, wrap tape around standard bushing to make it slightly larger. This is frequently caused by worn router bearings. • Defective template. Contact Woodline for replacement. Send a picture to Sales@woodline.com if possible. Use part numbers on the templates.
Edges not aligned.	Wood not firmly against end block when cut or out of square. Realign, clamp and cut the material again.
	End blocks not square to the jig. Check to assure blocks are square to the template. Align with the slots in the template and assure wood is properly against the template end block when cut.
Board will not stay in place. Moves during cut	Sandpaper worn. Replace. Bit dull-replace bit Poor clamping practice. Over clamping will cause bowing and actually reduce the clamping. DO NOT OVERTIGHTEN KNOBS.
Jig bows in use.	Excessive clamp force. Re-adjust knobs to reduce bowing and improve clamping.

Specifications are subject to change without notice and components or templates packaged with unit are subject to change also. The color of sandpaper and material used for templates and components may vary. Contact Woodline via email at Techsupport@woodline.com or by calling 800-472-6950 for parts or service support.