

The Micro Fence Circle Jig

12970 Branford Street Unit M, Arleta, CA 91331 Phone 1-800-480-6427
 Email: microfence@microfence.com Website: www.microfence.com

The **Circle Jig** is available as an accessory to the Edge-Guide, (the **Circle Jig Attachment**), or as a separate complete tool, (the **Circle Jig Complete**).

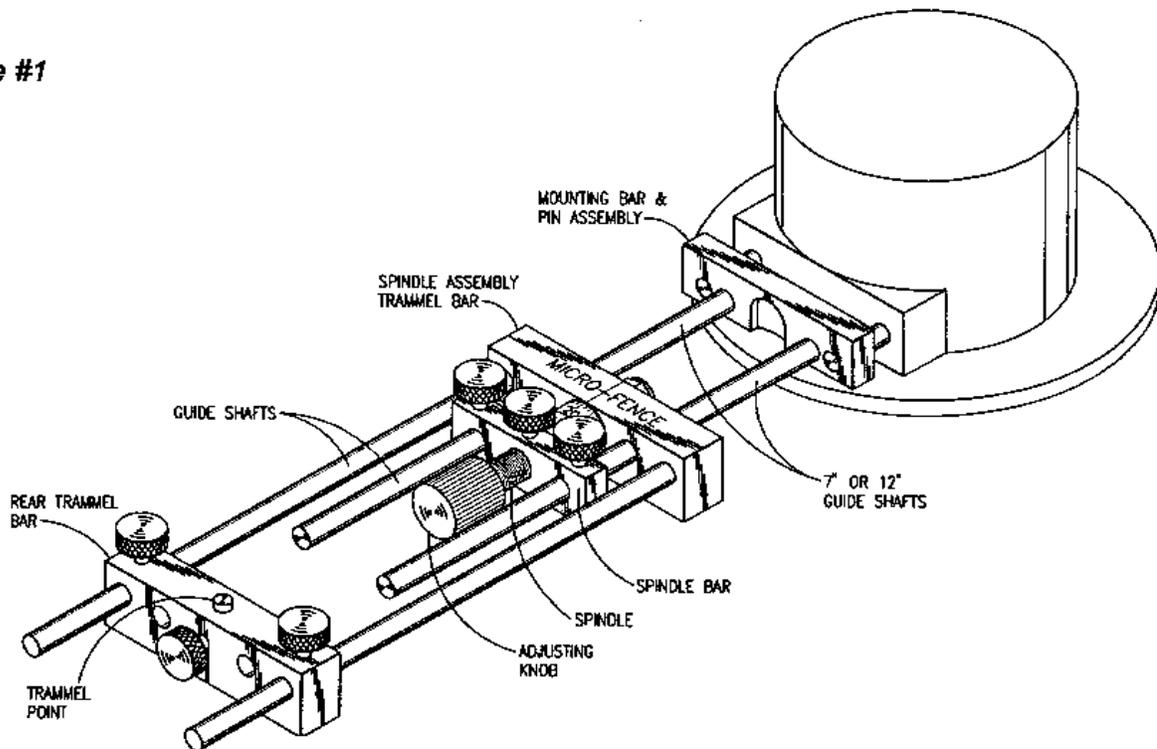
INSTRUCTIONS FOR OPERATION:

The **Circle Jig** was designed to maximize your router's versatility and efficiency in the making of curves and circles. It will provide telescoping adjustability and measuring capability for circles with diameters from approximately 6" to 48". It will also function as the adjustable portion of your own shop-made jig for larger work requirements. We hope it will serve as a catalyst for your thinking as you dream up and plan your woodworking projects.

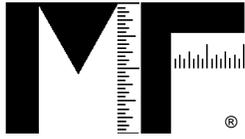
If you already own a **Micro Fence®** Edge Guide, you have the appropriate mounting bar, pins and guide shafts for the installation of the **Circle Jig Attachment**. Simply slide off the **Micro Fence®** body/spindle assembly and replace it with the **Circle Jig Attachment**. (When properly assembled, the unit will appear as shown in Fig.1.) If you have purchased the **Circle Jig Complete** and do not own the entire **Micro Fence®** System, the proper mounting bar, pins and screws will be supplied with the tool.

Be sure your router is unplugged and switched off before installing this accessory.

Figure #1



There are several ways in which your **Circle Jig** can be assembled. Each configuration offers certain advantages when addressing specific types of work requirements. Your first decision will be to select the assembly that best serves your needs. Some of the most common tasks are listed in the following pages.



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Circles Between 12" and 48" Diameter: Figure 1 illustrates the assembly used most frequently for circle cutting. We recommend your circles be initially "blanked out" slightly oversized with either band or sabre saw, and then trued to perfection with our Circle Jig and your router fitted with a spiral-fluted straight bit. We realize that this approach may not be the most efficient production technique, but it will reduce the cutting load for your router and make the entire process a safer and more manageable experience.

Use a compass or trammel beam for your original layout and then drill a 1/8" pilot hole. Drill approximately 3/8" deep at the center position to receive the spiked end of the trammel point. Unless you're working with material less than 1/2" thick, you won't have to drill all the way through your workpiece. **(This will allow you to work upside-down and leave the top side of your work unmarked).** Position the trammel point in the center hole of the rear trammel bar, leaving the brass locking screw slightly loosened. Place the trammel bar, over the pilot hole and gently tap the 5/32" spike on the end of the trammel point into it. The trammel bar should be adjusted up or down on the pin to insure that the entire jig is parallel to the work surface. (See Fig. 2). If you wish you may insert a spacer of appropriate thickness between the work surface and the bottom of the trammel bar. Be sure, then, to tighten the locking thumbscrew.

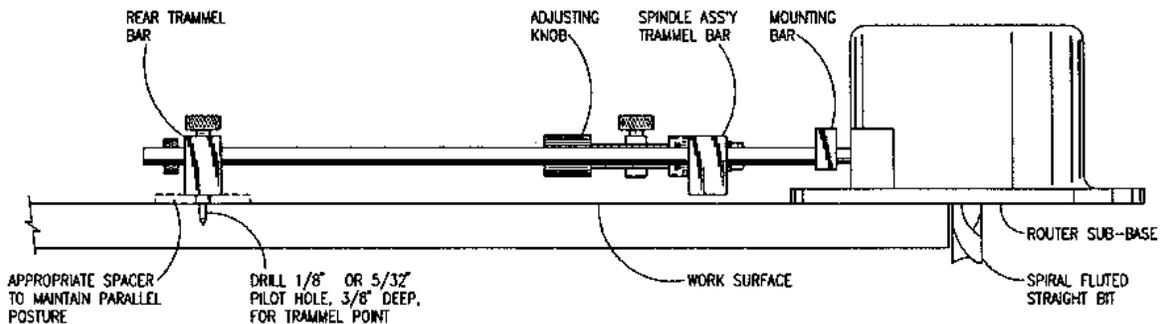
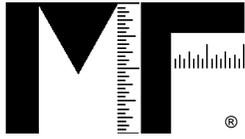


Figure #2

Set the initial jig position so that the router bit is slightly clear of the material to be cut. Make a "power-off" revolution to check all settings and to see that a smooth, uninterrupted motion will be achieved. The use of a dry lubricant spray on the sub-base of the router may provide improved motion. Once you are satisfied that all systems are "go", you're ready to make a circle.

Turning the spindle clockwise draws the bit toward the fence; counter-clockwise pushes it away. Remember that routers rotate clockwise, (when viewed from above). Your feed should be counter-clockwise to avoid "climb-cutting." Take it easy. NEVER force your router beyond its load capability.



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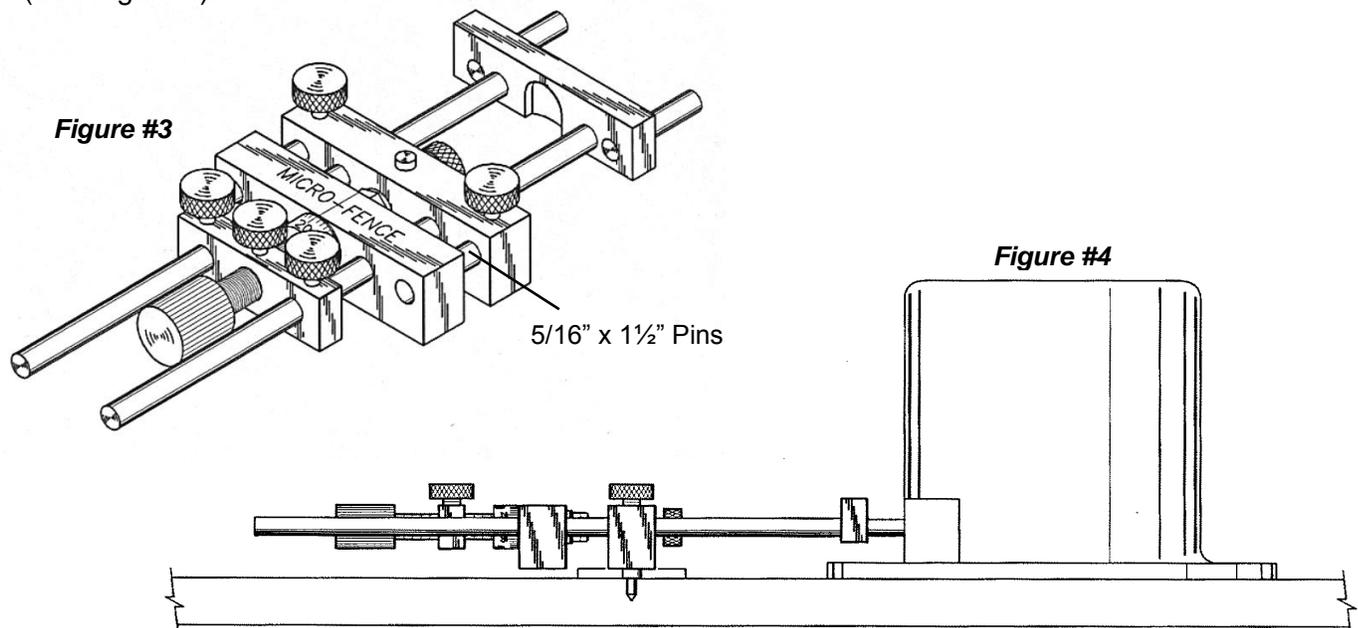
Be sure to tighten all mounting and adjusting screws firmly. Failure to do so can result in spoiled work or injury. We encourage you to develop the habit of rechecking tightness frequently during use to insure that the router's vibration has not caused loosening.

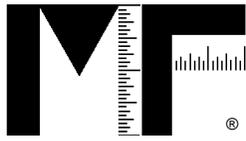
Start the router and gently "dial" into the cut. Turn the Circle Jig's adjusting knob clockwise until you hear the bit touch the workpiece. When contact has occurred, dial approximately .010" (.28mm) further and make an initial pass around the work. "Dead" spots or heavier cutting sounds will indicate the trueness of your circle. We recommend subsequent cuts in small increments until you become familiar with the characteristics of both material and machine. Your circle will be true when even cutting occurs all the way around the work. Check your diameter with tape measure or calipers and continue "dialing in" until you achieve the dimension you require.

Note: Micro Fence®'s Vacuum Center will allow you to secure your jig to the work surface without any need for a pilot hole. Call us or check our website for additional information.

Circles Smaller than 12" :

The **Micro Fence®** Circle Jig system offers an assembly option for smaller circles. Figures 3 & 4 show the rear trammel bar mounted in front of the spindle assembly using the two 5/16" X 1 1/2" pins that are included in your parts bag. After removing the two 12" (304.8mm) guide shafts from the spindle assembly trammel bar, these pins may be installed in a position pointing toward your router. They will provide a place to mount the rear trammel bar, and thus utilize the 1/4" trammel pin as your center. **Always pay particular attention to keep the Circle Jig parallel to your workpiece.** The trammel point can be adjusted vertically so that its shoulder supports the jig. Optionally, a spacer, (or washer) of appropriate thickness can be placed between the work and the bottom of the spindle bar. (See Figure 4).





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Mating Radiuses: One unique capability that your Micro Fence® Circle Jig brings to your shop is that of being able to create virtually flawless mating circular cuts. Let's say, for example, that you use your jig to cut out a perfect circle. If you measure the cutting diameter of the bit you are using, (use dial calipers to check the kerf of your bit, See Fig. 5 below), you can dial that precise dimension inboard to produce the set up you'll need to cut the perfect mating radius.

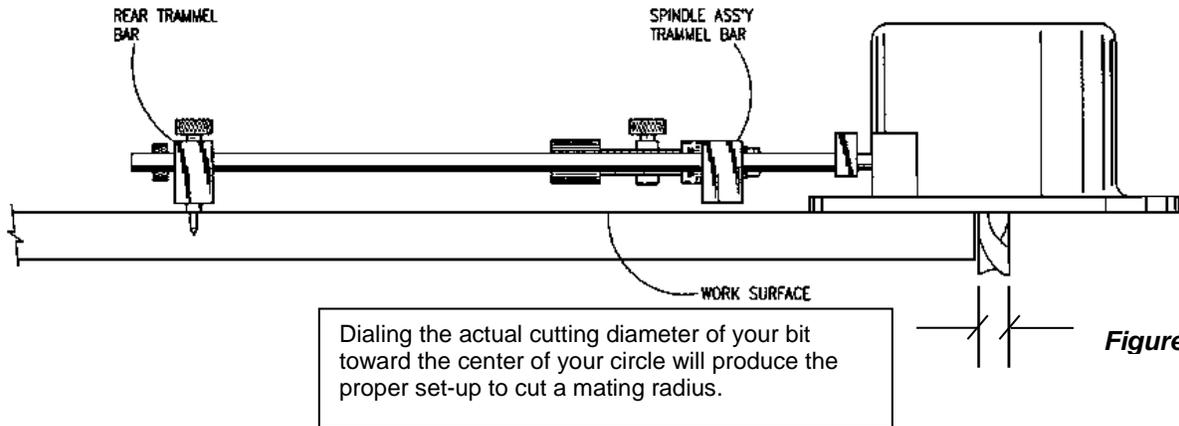


Figure #5

Making circles under 6" diameter with the Micro Fence Circle Jig is a potentially dangerous procedure. Our Center Bar and Leveler Kit, used with our Edge Guide, will allow you to cut diameters as small as one-half inch.

Circles Larger than 48" (without Longer Guide Shafts): Out of the box, your Circle Jig will make circles up to just over 48", depending on the diameter of your router's base and, of course, the size of the bit you are using. If your job requirement is greater than 48", the jig may be mounted on any length extension you wish to fabricate using the 6-32 threaded holes that are on the underside of the trammel bars. Securely fasten **both** rear and spindle assembly bars to the end of a strip of approximately 1/4" thick material, (masonite, plastic, plywood or aluminum), that measures 3 1/2" to 4" in width. You should utilize all four tapped holes to maximize rigidity. Use flat-head screws and countersink them so your jig will slide smoothly over your work surface. Drill a hole, or series of holes for the trammel point on the centerline of this extension strip at whatever position your job requires. (See Figures 6 & 7)

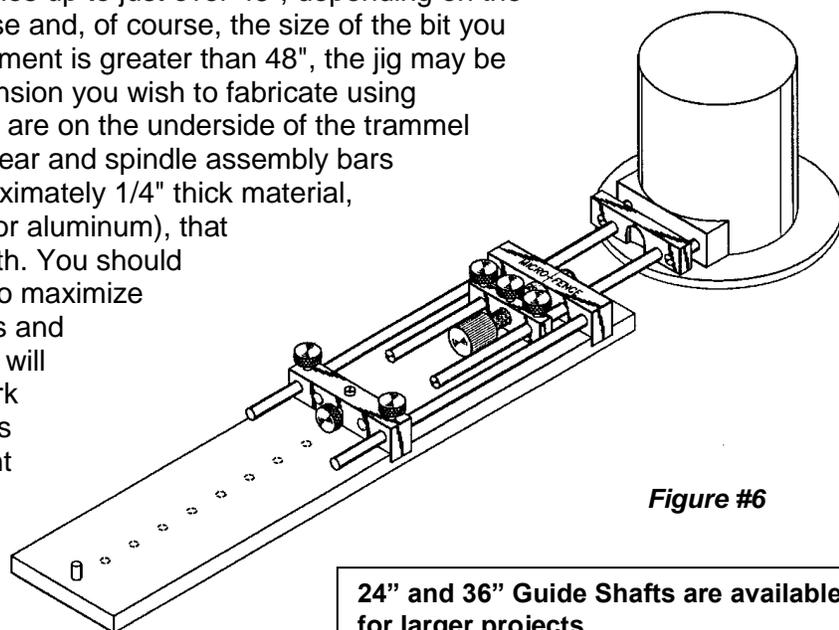
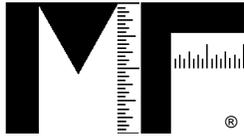


Figure #6

24" and 36" Guide Shafts are available for larger projects.



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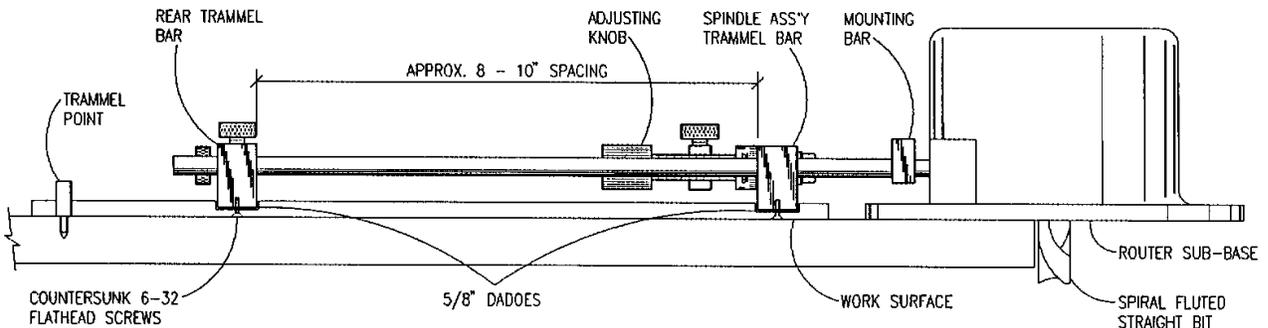


Figure #7

Note: Pay particular attention to keep the entire jig parallel to the work surface. It may be necessary to dado your extension strip with 5/8" slots in which to mount the circle jigs trammel bars. We recommend an 8" to 10" spacing. (See Figure 7).

Note: When cutting larger circles, it may be advisable to enlist the help of another pair of hands to keep pressure downward on the centerpoint while you operate the router. This will eliminate the possibility of the trammel point lifting. A "dry-run" with the router switched off should tell you when this would be preferable.

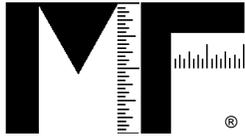
Internal Circles:

In operations such as loudspeaker manufacture or circular frame generation, both inboard and outboard cutting surfaces of the bit are in contact with the material. A starting hole may be drilled to allow start-ups with the router bit clear of the work. ***This is a good safety practice with either plunge or fixed-base routers.*** Be sure to clamp or fasten both interior and exterior portions of the material **securely** to avoid movement and possible kickback scarring when final cut-through occurs. We recommend that the cutout portion be screwed or pinned down to a flat sub-surface, insuring that your trammel point position will remain secure before, during and after the cut execution. This practice will allow concentric cuts to be made for final diameter dimensioning or for rabbeting to accept speaker rims.

There are some varieties of two-sided tape that can be used very effectively for fastening down the work piece. **Micro Fence®** offers 2" wide rolls that can be ordered from us at 1-800-480-6427.

Shop Tips for Better Circles:

Pausing as you cut may cause burn marks or imperfections. Try constructing a lazy susan and placing your circle blank on it with a rubber router pad under it. This arrangement will allow you to rotate the work while holding the router steadily in one position. Continuous motion is more easily accomplished, cord management becomes less of a problem and fancy footwork is eliminated.



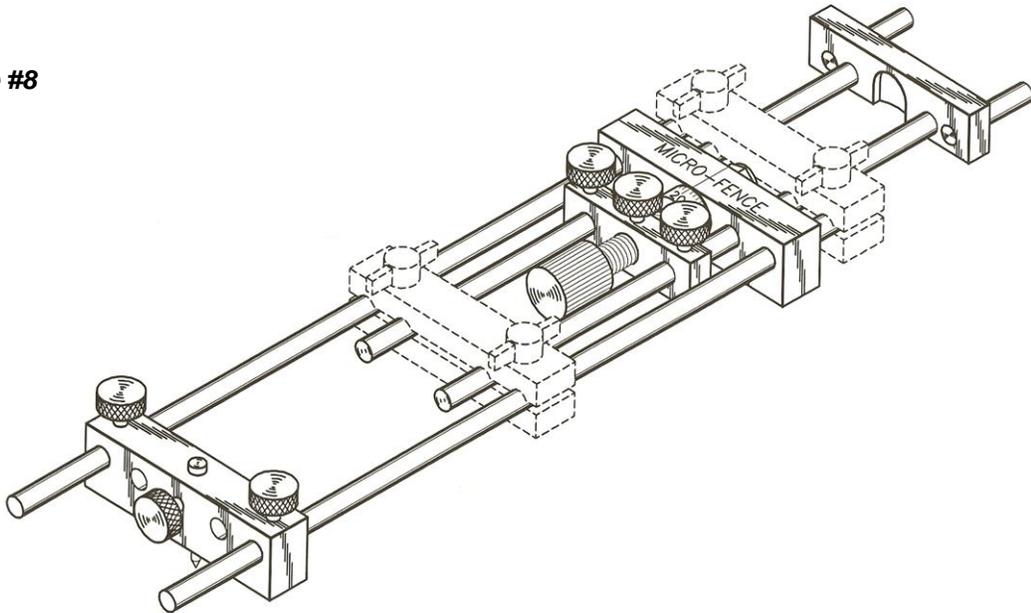
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Using larger diameter router bits when making circles provides greater speed, (SFM), at the cutting edge of the bit. This, in turn, provides cleaner cuts. We believe that spiral bits offer the smoothest finish and reduce tearing tendencies.

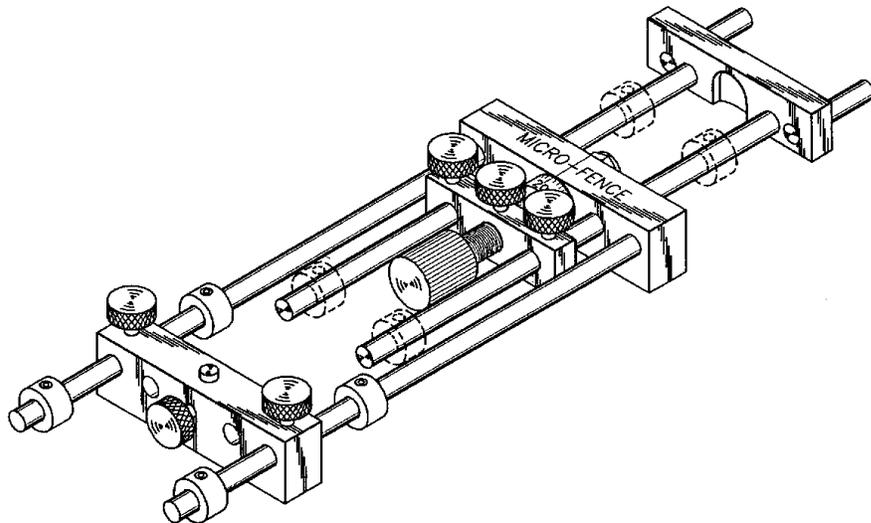
Our **Stabilizer Bars**, when installed across all four guide shafts, provide maximum rigidity for any Circle Jig operation, particularly with heavier cut requirements or when using larger routers. (See Fig. 8). When using the longer guide shafts to full extension, it may be necessary to use two sets of stabilizer bars. If your intention is to cut circles in a single pass without first "roughing them out" with a band or saber saw, the stabilizers are a virtual necessity for accurate, smooth cutting. They may be positioned in front of or behind the spindle bar, and simply clamp across all four guide shafts.

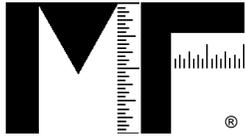
Figure #8



Another of our accessories, the **Stop Collar Sets**, (Figure 9), can be used to pre-set or "memorize" cutting positions for ease of repetition. They are fitted with nylon-tipped setscrews that prevent scarring the stainless steel guide shafts. Use the 5/64" allen wrench to loosen and tighten them.

Figure #9





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Using Your Circle Jig to Make Parallel Dadoes:

When your work requires referencing from a previous cut, or making parallel dadoes, the Circle Jig is easily modified to meet the need. Simply install the secondary aluminum fence on the underside of either trammel bar (See Figures 10 & 11). A pair of 6-32 X 1/4" flathead screws is provided with the unit. You can make and install your own secondary fence to comply with whatever your job requires. If, for instance, you are making parallel cuts with a 3/8" bit, you may wish to fabricate a secondary fence, (we recommend hard maple), just slightly smaller than the size that your bit's cutting diameter. (This will reduce or eliminate the possibility of the fence "drifting" away from your reference edge). The drilled and tapped holes are on 2 1/4" centers.

Figure #10

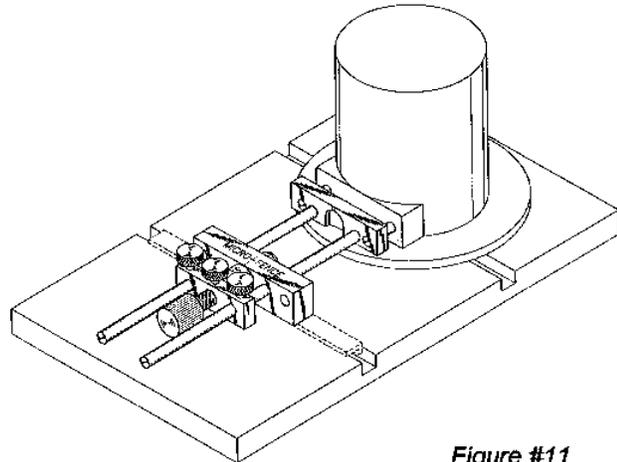
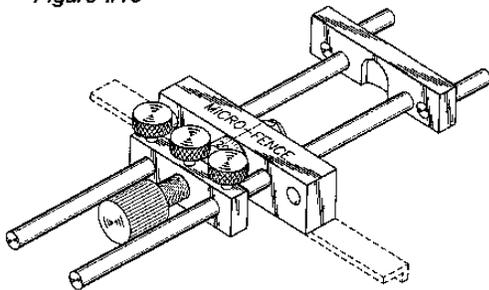


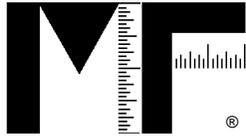
Figure #11

Maintenance:

Use the 1/8" black rubber pad, (included in every **Micro Fence**® package), under fingers or pliers to insure firm seating and to avoid damaging the stainless steel guide shafts or mounting pins during installation and/or interchanging. Be aware that some pliers have jaws so sharp that they can cut through the rubber pad. Alternatively, a wood-jaw vise or drill chuck offers methods of tightening and loosening.

Keep your **Micro Fence**® Circle Jig clean and well lubricated. Frequent dusting with compressed air or soft brush is highly recommended. A good quality, silicone-free dry lube/cleaner that will not stain wood, but will help to keep all stainless rods sliding smoothly. We use a product from Dynaglide called "Woodworking & Tool Dry Lubricant & Cleaner" which can be ordered from us.

Whenever guide shafts are installed, check their alignment to insure that they are parallel to each other. This can be checked by placing the mounting bar/ guide shaft assembly on any flat surface, (like a table saw top), and pressing the end of each guide shaft with your fingertip. If there is any deflection, that is, if either rod is off the table, press it gently in the appropriate direction and retighten. Recheck on the tabletop until both rods are touching equally. Keeping the guide shafts parallel in both directions and well lubed will give you a smooth-sliding jig.



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Occasional cleaning of the lead-screw thread with a good de-greasing agent will keep it operating smoothly. At the factory, we apply a single drop of oil in the spindle-locking screw hole for lubrication. Our preference is lightweight bicycle oil.

The “feel” of your micro-adjusting spindle mechanism can be altered by increasing or decreasing the compression of the plated wave washer located under the 7/16” nylock nut. The torque on these assemblies is preset at Micro Fence to maximize rigidity and minimize deflection potential. Tightening the nut while holding the adjusting knob will make the spindle harder to turn; loosening the nut will make it easier. Be careful not to loosen the nut too far. Doing so could have an effect on the jig’s rigidity under load.

It is normal for the brass locking screws to tarnish. Occasional polishing will restore their original lustre. This is easily accomplished by holding the screw shaft in a hand-held drill chuck (drill press or cordless), hand-tightening the chuck, and spinning the screw while touching the head with Scotch Brite or fine steel wool. Brass was chosen as the material for all our locking screws because it is softer than the stainless steel guide shafts. **If you lose any of these parts, be sure to avoid replacing them with steel or other types of screws. This could cause permanent scarring to your tool.**

See our latest brochure or visit our website at www.microfence.com for the latest information on our products and accessories.

Complete coverage of router techniques and practice is beyond the scope of these instructions, but this knowledge is essential for safe and accurate work. If you haven’t studied this topic we recommend reading any of the titles listed below.

Reading Recommendations:

Hylton, Bill and Matlack, Fred – **Woodworking with the Router, Professional Router Techniques and Jigs Any Woodworker Can Use** (hardcover)

Kirby, Ian – **The Accurate Router, Quick Setups and Simple Jigs**, Cambrium Press, Bethel, CT, distributed by Lyons Press, NY, NY, 1998. ISBN 0-9643999-7-0

Warner, Pat – **The Router Book, A Complete Guide to the Router and Its Accessories**, The Taunton Press, Inc., Newtown, CT, 2001. ISBN 1-56158-423-1

– **Fast, Easy & Accurate Router Jigs**, Popular Woodworking Books, an imprint of F&W Publications, Inc., Cincinnati, Ohio, 1999. ISBN 1-55870-486-8 (alk. paper)

– **The Router Joinery Handbook**, Popular Woodworking Books, an imprint of F&W Publications, Inc., Cincinnati, OH, 1998. ISBN 1-55870-444-2 (alk. Paper)

– **Getting the Very Best From Your Router**, Betterway Books, an imprint of F&W Publications, Inc., Cincinnati, OH, 1996. ISBN 1-55870-399-3 (alk. Paper)

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