Aluminum Box Joint Jig

A Ready-to-Use Jig from the Woodsmith Shop

**Movable Material Rest (TOP) Knob**

**Adjustable Key (BOTTOM) Knob**

**Backer Strip**

**Fixed Material Rest**

**Movable Material Rest**

**Adjustable Key**

**Inside Locking Knob**

**Outside Locking Knob**

**Warning:** Once the locking knobs have been installed, DO NOT make any changes to the adjustable key knob or the movable material rest knob (see FRONT photo, above), without loosening the locking knobs first. Failure to heed this warning could result in a damaged adjustment mechanism. For more on this, see Steps 2 and 3. Note: When changing the width of the key, first loosen the inside locking knob. To change the distance between the key and the blade, first loosen the outside knob.

The Box Joint Jig is just about ready to use right out of the box. Only a couple of things need to be done before you can start cutting box joints.

**Install Knobs** - First, screw the “inside” and “outside” locking knobs into the holes in the back of the fence, see BACK photo, above right. Now the jig is fully assembled, but before it can be used it must be mounted to your miter gauge.

**Mount Jig** - Attaching the jig to your miter gauge is a two-step process: First, the miter gauge/spacer block is attached to the back of the fence (A), using two T-slot nuts (E), washers (D), and star knobs (C), see Exploded View. To do this, first loosely assemble the T-slot nuts, washers, and knobs on the spacer block. Then slide the T-slot nuts into the T-slot on the jig.

Now, the spacer block (B) can be attached to the miter gauge, see Exploded View. To do this, center the spacer block on the width of the miter gauge and then screw it in place on the miter gauge.

The next step is to position the jig on your table saw or router table. To do this, place the jig on your saw or router table with the miter gauge bar in the slot. Now position the opening in the fence of the jig over the blade or router bit that you will use to cut the box joints. Move the fence until the blade or bit is approximately 1/8” from the fixed material rest and tighten the star knobs on the spacer block, see detail drawing below right.

**Backing Strip** - The white plastic strip on the front of the jig is designed to back up the workpiece and prevent chipout. For best results, reposition the strip each time you cut a different size box joint.

The strip can be moved from side to side or pulled out and reinserted upside down. To do this, loosen the locking knobs and the set screws on the back of the jig, see BACK photo above. Then reposition the strip, and tighten the set screws and locking knobs.

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**Parts List**

1. Fence (A)...........45 02 650
2. Spacer Block (B) 30 03 121
3. Star Knobs (C)....10 65 204
4. Washers (D)........10 40 204
5. T-Slot Nuts (E).....10 45 516
6. (1) Backing Strip...45 02 657

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**NOTE:** SCREWS TO ATTACH MITER GAUGE NOT INCLUDED IN KIT
MAKING BOX JOINTS

The procedure for making box joints is divided into three parts:
1) Stock Preparation
2) Setting Up the Jig
   (Steps 1, 2, and 3), and
3) Cutting the Slots
   (Steps 4, 5, and 6).

Always test your setup on scrap pieces before you start cutting the material you’ll use in your project.

The goal is to cut box joints that go together with a slight “friction fit.” This may require some readjusting of the jig to get a perfect fit. But the end result is worth the effort.

STOCK PREPARATION

Width: Buy extra-wide stock or rough cut (rip) your stock at least one pin wider than needed. (Ex.: If you’ll be cutting ¼”-wide pins, rip your stock at least ¼” wider than needed.) This way, the stock can be trimmed later to leave a full pin at each end. While this isn’t necessary for strength, it does make the joint more attractive.

Length: Because a box joint is a “through joint,” always cut the pieces of your box to the full length of the finished box, both side to side (length), and back to front (depth). And check that the ends of the boards are all square.

Thickness: Be sure to plane all of the stock to a uniform thickness.

Test Pieces: From scrap wood, cut several test pieces to be used during setup of the jig. Cut the test pieces to the same dimensions as the stock to be used on the project.

SETTING UP THE JIG

Step 1: Raise the Blade

With the motor unplugged, raise the dado blade (or router bit) to match the thickness of the workpiece above the material rest, see photo. Note: This is the distance from the material rest to the top of the blade. This way, the length of the pins will match the thickness of the workpiece and the ends of the pins will be flush with the face of the adjoining piece when the joint is assembled, see photo above right.

Safety Note: The maximum thickness of stock that can be cut safely on the box joint jig is ¼”. Cutting stock over ¼” thick will cause damage to the fence.

Step 2: Set the Width of the Key

To set the width of the key, first cut a slot in a test piece. Then adjust the width of the two-part key to match the width of the slot you’ve just cut. To do this, loosen both locking knobs on the back of the jig. Then turn the adjustable key (bottom) knob on the end of the jig until the slot you just cut in the test piece fits snugly over the key. Then tighten the adjustable key (inside) locking knob on the back of the jig, see detail at right.
Step 3: Adjust Spacing

To set the spacing between the slots, turn the movable material rest adjustment (top) knob until the key is exactly one slot width away from the blade, see detail. (The widths of the blade, the key, and the space in between them are the same.)

After positioning the key, tighten the movable material rest (outside) locking knob on the back of the jig. Then make a test joint and readjust, if necessary. Moving the key closer to the blade loosens the joint. Moving it away tightens the fit.

CUTTING THE SLOTS

Step 4: Cut Slots on End

Position the end of the workpiece on the fixed material rest with one edge butted against the key. Then cut the first slot. This creates a pin on the end of the workpiece. To cut the remaining slots, straddle the key with the slot you just cut, and cut the next slot.

Step 5: Cut Matching Slots

To cut matching slots on the opposite end of the same workpiece, flip the workpiece end-for-end (as shown in the photo), so the waste edge and the starting edge are oriented the same way they were when you cut the first end. Now cut the slots using the same procedure as in Step 4.

Step 6: Form Mating Pins

To form the pins on the mating piece to match the slots in the first piece, use the first piece as a "setup gauge." Turn the first piece around so the waste edge is on the opposite side and the slot that was cut first straddles the key, see photo. Butt the edge of the mating piece against the edge of the first piece and cut a slot in the mating piece. Now set the first piece aside and cut the remaining slots in the mating piece. Finally trim off the waste and test the fit.
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