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## Box & Finger Joint Set Instructions

Item #SBJ-0830

### Minimum Use Requirements

Do not use this product on any under-powered table saw or other type of equipment such as a miter saw, radial arm saw, portable circular saw, compound miter saw, etc. Your machine should be stable, free of vibration and have a minimal arbor run-out tolerance of 0.003" maximum. This can be checked with a dial indicator and magnetic base.

The Oshlun Box & Finger Joint Set should be used with a jig to achieve the best results. An easy to make jig is detailed below, however other plans and instructions are available from magazines, websites and other publications for a variety of jigs to meet your needs. You can also purchase commercially made jigs from most fine woodworking retailers.

### Anatomy of a Box Joint

The anatomy of a box joint is very simple consisting of two basic parts, the fingers and the notches. See *image (1)*.

### Making a Box Joint Cutting Jig

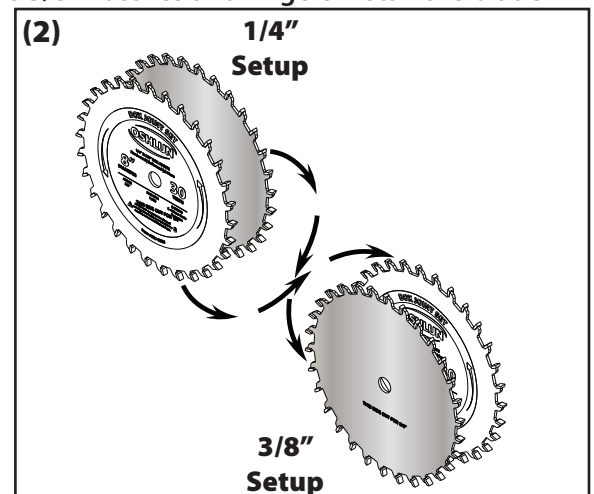
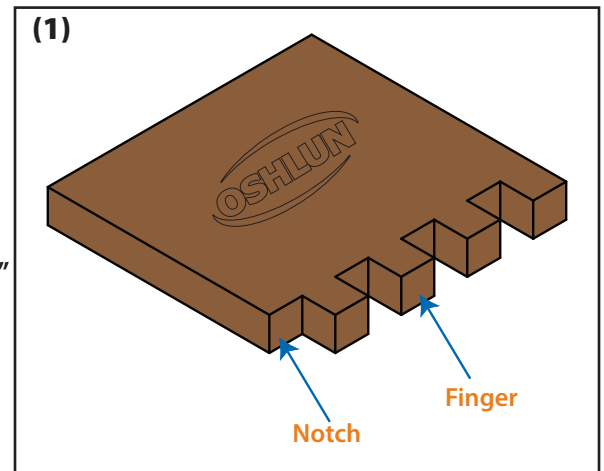
A separate jig must be made to accommodate each box joint size you will be cutting. For this set you will need two jigs to cut the 1/4" and 3/8" box joints that this set is designed for.

**Warning:** Before making any adjustments to the jig or the blades make sure to disconnect the power from your machine. Failure to do so may result in serious injury or even death.

Disconnect the power to the machine and install the box joint set to cut the desired width. To make 1/4" notches and fingers install the blades with the silk screen markings facing out, noting the etched marking stating (THIS SIDE OUT FOR 1/4") is still visible when the blade is installed. To make 3/8" notches and fingers install the blade with the silk screen markings facing in, noting the etched marking stating (THIS SIDE OUT FOR 3/8") is still visible when the blade is installed. See *image (2)*.

Make sure to install the set on your machine with the rotational arrows on the blades matching the rotation of the motor on your machine. Before tightening the blades in place make sure the carbide tips are staggered and do not touch each other and then tighten the set in place.

**Note:** Carbide teeth should never come in contact with other teeth or steel bodies.

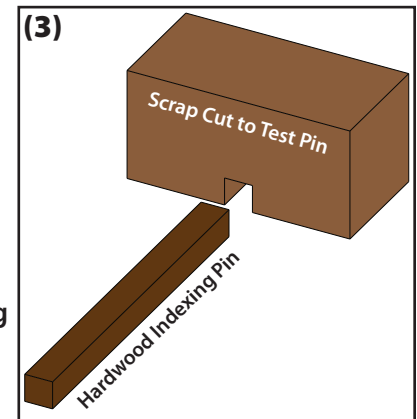


The height of the blades above the table should be equal to the width of the cut during the setup process, meaning that if you are cutting a 1/4" box joint, the height of the blades should be 1/4" at this point.

After setting up the blades to the desired width, reconnect the power, turn the saw on and make a cut in a scrap piece of wood.

**Note:** Make sure the scrap piece of wood is large enough to safely cut the desired size notch.

The next step is to make the indexing pin for your jig. This piece should be about 6" long and made from hardwood. Machine the piece of hardwood to the same width as the cut you made in the scrap piece of wood. See **image (3)**. The indexing pin should fit in the test cut tightly enough that it will not fall out but loose enough that it only requires minimal force to be put into place.



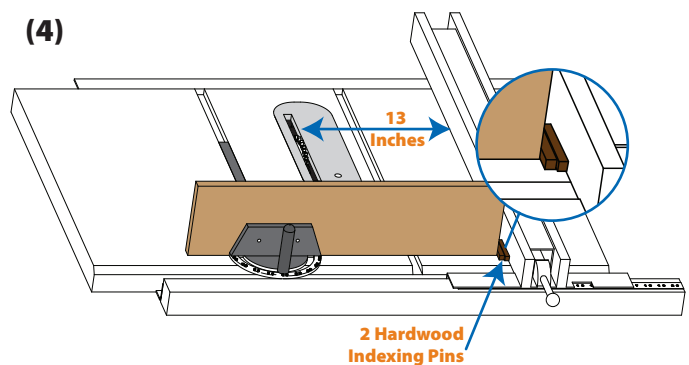
Once you have cut your indexing pin to the correct width, cut the pin into two equal size pieces.

**Note:** This is a very important step in making the jig and time and care should be taken to do it properly.

After cutting your indexing pin to the proper size, cut a piece of 3/4" plywood to 26" x 6" to be used as the backer board for the jig.

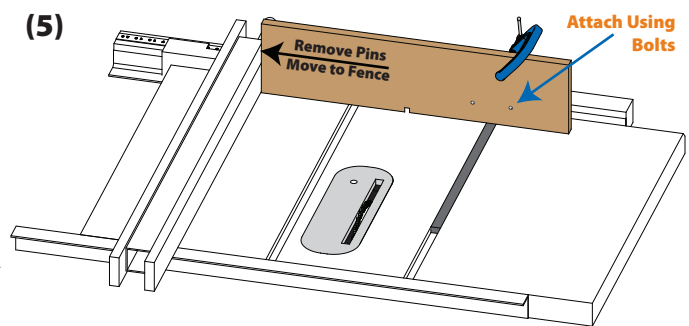
If you removed the box joint set from your saw to make the pins or backer board install the box joint set to cut the desired width as explained on the first page of these instructions.

Disconnect the power from the machine, set the fence to 13" and stand the backer board on its long edge with one face against the miter gauge on the saw. Place the two hardwood indexing pins next to each other between the fence and edge of the board. See **image (4)**.

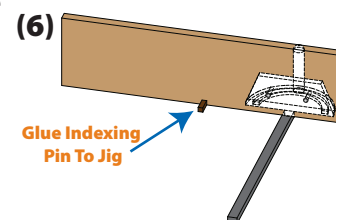


Reconnect the power, turn the saw on and using the miter gauge, slide the plywood over the blades to cut a notch in the backer board. Turn the saw off and slide the backer board to the starting position.

Disconnect the power from the machine, remove the two hardwood indexing pins and slide the backer board to the fence. Clamp the backer board to the miter gauge and mark the location of the holes in the miter gauge on the backer board. See **image (5)**. Remove the clamp and drill counter sunk holes in the backer board that will allow you to attach it to the miter gauge using bolts. Make sure the heads of the bolts are below the surface of the board.



Move the fence to 14" or more for safe clearance between the fence and the backer board. Proceed to glue one of the hardwood indexing pins in place on the backer board in the notch you cut previously. Make sure that at least 75% of the hardwood indexing pin is protruding from the front face of the backer board. See **image (6)**.



Now that your jig is set up you can proceed with cutting box joints.

## Cutting Box Joints

Disconnect the power to the machine and install the box joint set to cut the desired width as explained on the first page of these instructions.

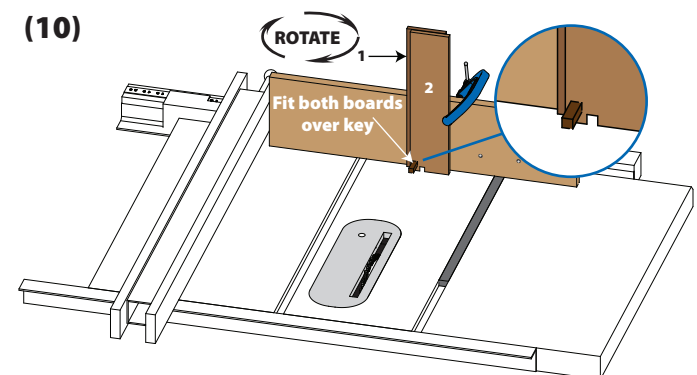
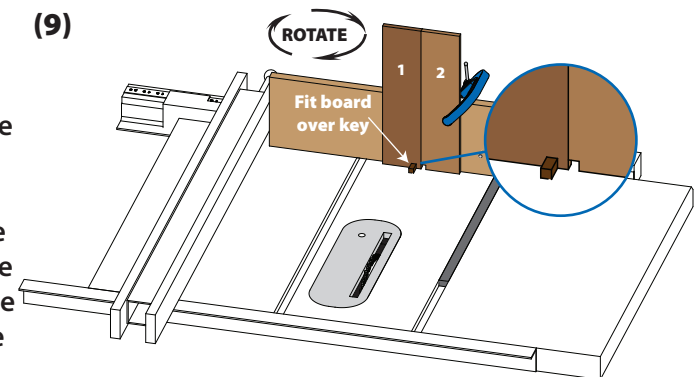
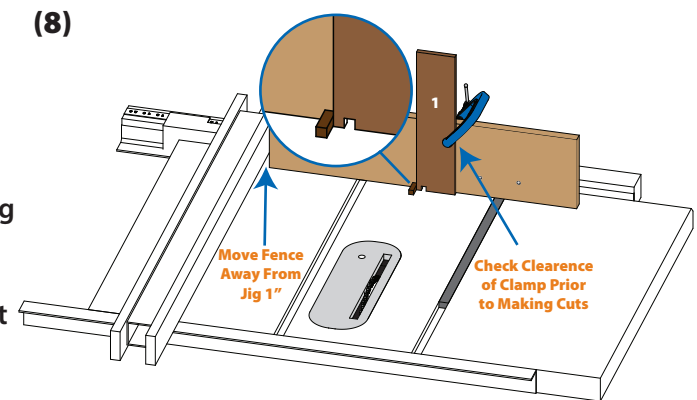
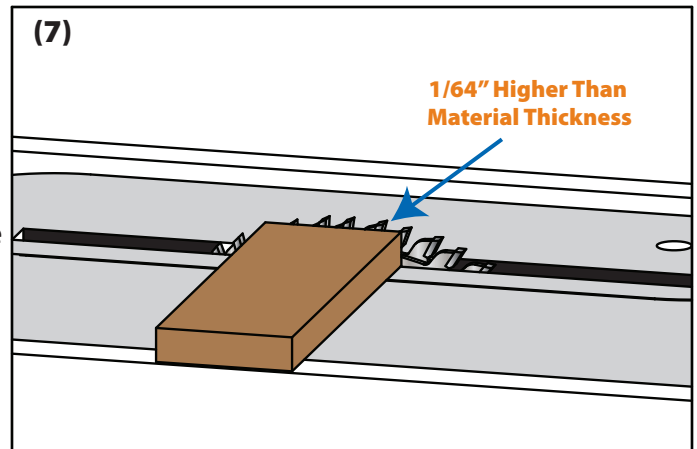
The blade tips should be  $1/64''$  higher than the width of the material being cut, meaning that if you are cutting a  $3/8''$  box joint in material that is  $1/2''$  thick, the height of the blades should be  $1/64''$  higher than the  $1/2''$  thickness of the material. See *image (7)*.

Before cutting fingers and notches in the actual wood you will be joining, make test cuts in two scrap pieces of wood that are the same thickness as the wood that will be used for the finished project.

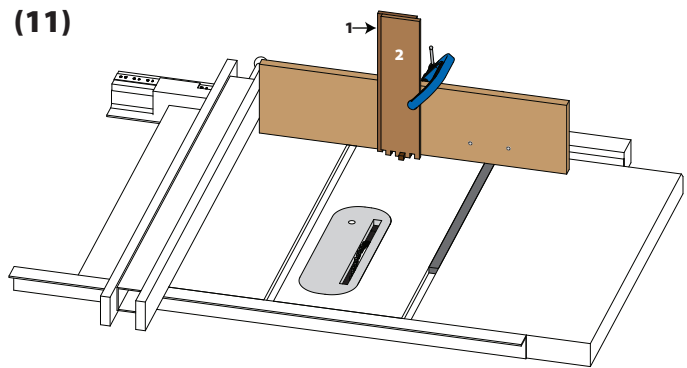
With the power to the machine still disconnected, stand one piece of the test board on end, place it against the backer board and position it against the hardwood indexing pin and clamp it securely in place on the backer board. Reconnect the power, turn the saw on and using the miter gauge, slide the jig over the blades to cut a notch in the test board, resulting in an outside finger and one notch in the board. See *image (8)*.

Turn the saw off and slide the jig to the starting position and disconnect the power. Unclamp the test board and rotate it 180 degrees and place the newly cut notch over the hardwood indexing pin. Next stand the second test board (the piece that will be mating with the first one) on end, place it against the backer board and position it against the edge of the first test board. Clamp it securely in place on the backer board and remove the first test board. Reconnect the power, turn the saw on and using the miter gauge, slide the jig over the blades to cut a notch in the end of the second test board. See *image (9)*.

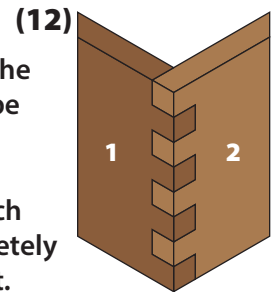
Turn the saw off, slide the jig to the starting position, disconnect the power and unclamp the second test board. Place the first test board in place as it was positioned when making the first cut with the notch now over the hardwood indexing pin and place the second test board in place with the first notch also over the hardwood indexing pin and clamp both pieces securely in place on the backer board. Reconnect the power, turn the saw on and using the miter gauge, slide the jig over the blades to cut the next notch and finger in both boards. See *image (10)*.



Turn the saw off, slide the jig to the starting position and disconnect the power. To finish the remaining notches and fingers, unclamp the boards, move the newly cut notches over the hardwood indexing pin and clamp both pieces securely in place against the backer board. Reconnect the power, turn the saw on and using the miter gauge, slide the jig over the blades to cut the next notch and finger in both boards. Continue to repeat this process until all fingers and notches have been cut. See *image (11)*.



After all notches and fingers are cut, turn the saw off, slide the jig to the starting position and disconnect the power. Unclamp the boards and check the quality of the joint. The two test boards should fit together with minimal force but with enough friction to stay in place. If the pieces fit too loosely this means that the space between the blades and the hardwood indexing pin is too small. If the pieces fit too tightly or not at all this means that the space between the blades and the hardwood indexing pin is too great. Adjust the jig as needed to produce the proper spacing making sure to test your setup on scrap wood prior to cutting the boards to be used in the finished project. See *image (12)*.



Once you have cut your final boards, apply glue to the inside of the fingers on one side of each joint. Assemble the pieces, check for square and clamp as required. Once the glue has completely dried, the ends of the fingers can then be sanded flush to leave you with a beautiful box joint.

**Note:** Box Joint Cut Sizes do not account for any re-sharpening or normal manufacturing and run-out tolerances.

### Safety Information

- Read and adhere to all instructions including your machines owners' manual.
- Use this tool at your own risk, all rotating tools are dangerous.
- Always wear ANSI approved eye, hearing, and a dust mask or respirator. A full-face shield is also recommended.
- Always turn your machine off and unplug electrical cord when changing blades, accessories or servicing the machine.
- Do not wear jewelry or loose fitting clothing.
- Make sure that you study the directional arrows on the blades. The teeth in most cases will be pointing toward you.
- Before beginning to use this product, do a final inspection and make sure that the arbor nut is tight and the blades are properly balanced. Never attempt to cut with blades that are dull or have missing or cracked teeth.
- Do not run this product at speeds in excess of the maximum RPM rating.
- Keep your hands away from spinning blades and make sure that you have a dado insert in your table so that the material can not fall between the box joint set and the table top.
- Do not attempt to install any kind of box joint set on a miter saw, radial arm saw, portable circular saw, compound miter saw, or cut-off saw. It is important that you have a stable machine free of vibration and minimal arbor run out tolerance (0.003" maximum run-out). This can be checked with a dial indicator and a magnetic base.
- Carbide is a brittle, hard material that can chip or fragment if it strikes rocks, nails or other foreign objects, make sure that the material you are cutting is free of these foreign objects.

### Caution

Sharpening these tools with a diamond file or grinding wheel will produce dust with potentially hazardous ingredients, specifically cobalt and tungsten carbide. Make sure you use adequate ventilation and adhere to material safety data information.

