

Using a Joint Jigger

This is an example of how to measure tubing lengths and angles for the Joint jigger. It's really easy! After you go through this example you will smack your head and say, "I could have used a Joint Jigger".

Tools:

Jigger, drill motor, hole saws, adjustable square, measuring tape, belt sander and masking tape. A good cutting fluid sprayed lightly from a window washing type spray bottle onto the hole saw while cutting is a plus.

STEPS:

- 1) Remove the bolts that hold the tube clamp at a given angle. Keep the center pivot bolt just snug enough to rotate. Use long nose vise-grips to secure. The reason for this is it is much faster to select the duplicated angle and secure. At times you have to go beyond the stop that is on the Jigger to get the angle you need. See figure A below

Figure A



Figure B



- 2) The hole saw diameter used will always be the tube size you are fitting to. Example: You have the longerons set-up in your jig and they are 7/8" dia. then use the 7/8" dia. hole saw.
- 3) The angles you duplicate will always be 90 degrees or more. You do not need to know the exact angle, use the duplicator. If an angle looks like it's 45 degrees don't set your Jigger to 45, use the angle duplicator. It will give you a more precise fit.

4) All measurements are taken from the centerlines of the tubes.

See figure B, page 1

5) To install a vertical tube:

The measurement from longeron centerline to centerline is 11", cut the tube 11" long. A chop saw with a fiber cutoff wheel works excellent for cutting tubing and leaves a good square cut. See figure A below

Figure A



Figure B



6) To bevel the tube ends:

The top and bottom longerons are 7/8" dia. Install a 7/8" hole saw on the Joint Jigger. Put the 11" tube in the Jigger with the end of the tube centered on the centerline of the hole saw. See figure A below.

Figure A



Figure B



- 7) Cut the tube, remove from fixture and deburr carefully with the belt sander
- 8) Put the other end of the 11" tube in the fixture. Before cutting, both ends need to be parallel. Use a short piece of tube, in this case 7/8" dia., and rotate the tube until the cut end is level. A small digital level set on the short tube will work excellent. See figures A and B below.

Figure A



Figure B



- 9) Double check the centerline of the hole saw to tube again to be sure it hasn't moved. Tighten clamp, cut, deburr, install - you are done.

- 10) To cut a diagonal tube:

Measure the next station centerline of tube to the intersection centerline of the tube we just installed, it's 16". (See figure A below) Use the chop saw to cut the tube 16" long and deburr.

Figure A



Figure B



- 11) Temporarily lay the tube in position and measure the angle with the adjustable square. See figure B, page 3.
- 12) Install the tube in the fixture and use the adjustable square to rotate the fixture until the correct angle is set then secure the fixture with Vise-Grips. See figure A below.

Figure A



Figure B



- 13) Adjust the centerline of the tube to intersect the hole saw centerline and cut, remove and carefully deburr. See figure B above and figure C below.

Figure C



Figure D



- 14) Again, lay the tube in place to duplicate the next angle with the adjustable square. See figure D above.

15) Prepare to cut the other end following steps 11 through 13 above.

16) Following steps 8 and 9 above setup the tube so the notches will be parallel. See figure A below.

Figure A



Figure B



17) Make the cut **BUT**, before loosening the clamp on the tubing, make a mark or tape an index mark next to the clamp jaws. You will need to rotate the tube 180 degrees for the final cut. See figure B above.

Figure C



Figure D



18) Using the short tube and level, rotate the tube 180 degrees keeping the index mark next to the clamp jaws. Tighten the clamp and make the last cut, remove and debur.

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Very accurate cuts can be made as seen in figure D, Page 5.

One thing to remember when using a Joint Jigger is the close tolerances of the cuts. Do not tack weld anything until you have all tubes in place. It's hard to install a diagonal tube between two vertical tubes when they have been tack welded.

A little practice and you will become very skilled and fast in notching tubes.