

## #81356 BENDING MACHINE INSTRUCTIONS

**GENERAL:** The #81356 bender will permanently form curves and bends in wood planking and plywood up to 1/8" thick, and in brass tubing of 1/16", 3/32" and 1/8" dia. The bender will also curve most light gauge plastic, brass and aluminum stock.

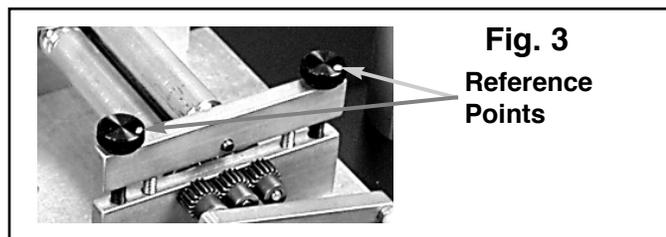
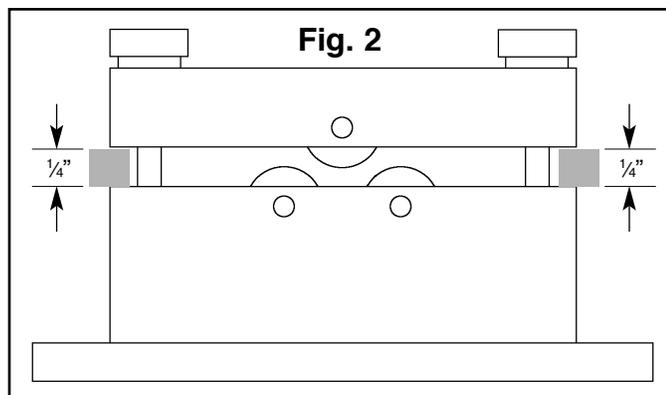
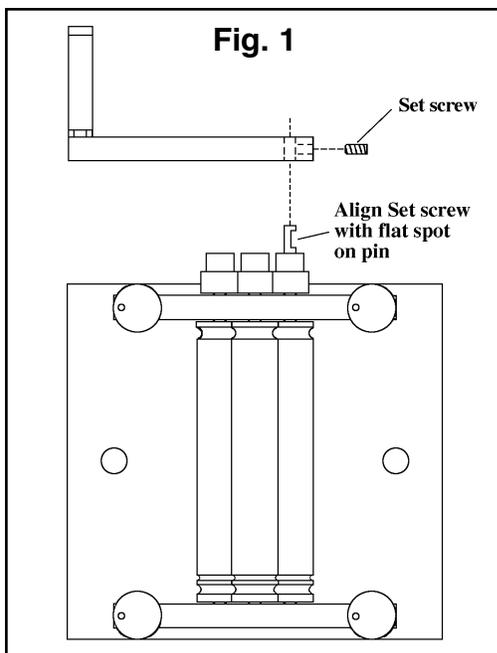
After unpacking, check for possible shipping damage. If any damage is apparent, notify Micro-Mark.

To reduce the possibility of shipping damage, the bender is packed with the crank handle unmounted. Attach the handle to the long 5mm shaft with the set screw, then tighten the set screw (Fig. 1). Using four pieces of 1/4" stock as spacers fore and aft (Fig. 2), adjust the clearance of the upper rails to assure they are parallel and equidistant from the lower frame

side plates. Then put a spot of white paint at the same location on each of the adjustment knobs (pointing in the same direction...Fig. 3)

Clamp the bender in a vise or mount it to your workbench with two screws through the holes provided in the base plate.

To bend wood planks, first wet the planks briefly under running water. Wipe off excess with fingers. It is not necessary to soak the wood for an extended period of time. Next, adjust the clearance of the top roller so that it just touches the plank placed between the upper and two lower rollers, turning all screws an equal number of turns. Now tighten all screws equally one-quarter to one-half turn. Turn the crank to feed the plank through the rollers.



To decrease the bend radius, equally tighten the screws a little bit more and roll the plank through again. If the wood makes cracking noises when passing through the rollers, it is an indication of being bent too much for a single pass. Reduce the number of turns of the screws for each pass. With a little practice, it is possible to vary the radius in a single plank by forming portions of it with different tension on the rollers.

Bending brass tubing is done in a similar fashion, except that it may be necessary to tighten the screws a lesser amount (about 1/8 turn) for each pass through the rollers.

The bender has grooves in the rollers for 1/16", 3/32" and 1/8" tubing. 1/8" brass tubing is usually work-hardened as purchased. It is recommended that it first be annealed by heating with a torch to dull red temperature, then allowing it

to cool in room air before bending. Bending 1/8" brass tubing without first annealing it, or the bending of other hard materials, will reduce the life of the bender.

Wood, plastic and metal stock may be straightened or uncurved by simply turning it over, adjusting the roller clearance, and running it through the rollers again.

### MAINTENANCE

Periodically lubricate the 1/8" steel shafts at the point where they pass through the side plates. Use a light oil similar to sewing machine oil. Keep the gears free of wood dust and other particulate. Lube the gears occasionally with heavy oil. Keep the rollers free of oil and or grease so as not to contaminate wood parts.

### LIMITED WARRANTY

This product is warranted to be free of defects in material and workmanship for a period of one year from date of purchase. Consequential damages resulting from the use of this tool are not covered by this warranty