



UNRIVALLED QUALITY

**MANUAL BENDER
P/N MB1000M**

WARNING

- 1. Always pay close attention to what you are doing. Turn off cell phone, pager, or any other distraction when using this machine.**
- 2. This machine is meant to be operated by competent individuals who have a thorough understanding of tube bending and machines in general.**
- 3. The bender is intended to be used by a single operator. Never allow a second individual to operate the machine while another holds tube.**
- 4. Always wear eye protection while operating tube bender.**
- 5. Never put your hands or other body parts into bender apparatus.**
- 6. Never wear loose clothing while operating tube bender.**
- 7. Always work in a clean, safe, well lit, level work area.**
- 8. Never use the wrong size die/type die for the tube being worked.**
- 9. Never operate the tube bender with broken, worn or damaged parts.**
- 10. DO NOT attempt to repair and reuse any damaged bender parts.**
- 11. User assumes all risks when using this product.**
- 12. This is a hand operated machine only. DO NOT use a bender handle longer than supplied with the unit. Over stressing of the unit will occur.**

NOTE

**JMR recommends that the MS1000M Manual Bender be mounted on the
JMR Manufacturing's MBS100 Bender Stand.
Optionally, the Manual Bender may also be mounted on a solid and secure work surface.**

OPERATION OF THE BENDER

WARNING

**This is a hand operated machine only.
DO NOT use a bender handle longer than supplied with the unit.
Over stressing of the unit will occur.**

1. Figure 1 is an overall view of the manual bender and a detail of the bender head.
2. The tubing should be clean and free from defects.
3. Always grease the die block prior to bending.
4. Make sure that all drive pins are fully seated.
5. Pass tube into die and position as required for start of bend. All bends will start at the edge of the radius die as shown in Figure 2.
6. Under normal use, the pivot bushings should be greased every 250-500 cycles. Under high use conditions it will be necessary to grease the pivot bushings every month or more often as necessary.
7. Install the U strap and snug retainer bolt if needed.

WARNING

Never put your hands or other body parts into bender apparatus.

8. Insert the bender handle into the bender lever and secure with safety pin.

WARNING

**Make sure the teeth on the bender rack FULLY engage the pivot arm drive sleeve.
Serious injury could occur if not engaged properly.**

9. While gently pulling the bender handle make sure the teeth on the bender rack FULLY engage the drive sleeve at the end of the pivot arm.
10. Pull the bender lever its full range.

WARNING

On some materials there could be a large amount of "spring back" after a bend is made.

11. SLOWLY and under full control, release the tension on the bender lever.
12. While gently pulling the bender handle make sure the next set of teeth on the bender rack FULLY engage the drive sleeve at the end of the pivot arm.
13. Repeat the above 4 steps until the desired bend is made.
14. There is an approximate maximum of a 41° bend for each full stroke of the drive rack.
15. To bend tubing further than the 41°, the radius die must be indexed to the next drive hole.
16. SLOWLY and under full control, release the tension on the bender handle.
17. Remove the drive pin when tension on the pin is released and before the radius die starts to rotate.
18. Rotate the pivot arm until the next radius die drive hole lines up with the pivot arm.
19. Re-install the pin fully and repeat the above bend process to complete the total bend.
20. To repeat bends, without the degree wheel, measure the drive rack's total travel.

21. When the tube is bent the desired amount, SLOWLY and under full control, release the tension on the bender handle.
22. Rotate the pivot arm allowing the drive pin to rotate the die and releasing the tube. It may be necessary to loosen the U-strap retaining bolt.
23. Remove the tube.
24. Use the smaller diameter drive pin (included) with any die that uses the first drive hole (closest to the pivot point).

WARRANTY

1. One year limited warranty on tube bender.
2. Limited lifetime warranty on dies against breakage. Warranty is void if damaged due to abuse or misuse.
3. Warranty item must be sent to JMR Manufacturing postage pre-paid for inspection. JMR Manufacturing will replace or repair item at their discretion.
4. JMR Manufacturing makes every attempt to satisfy customers as quickly as possible.
5. JMR Manufacturing will not accept any responsibility for personal injury or property damage arising from the failure of any parts manufactured and/or sold by JMR Manufacturing, LLC.

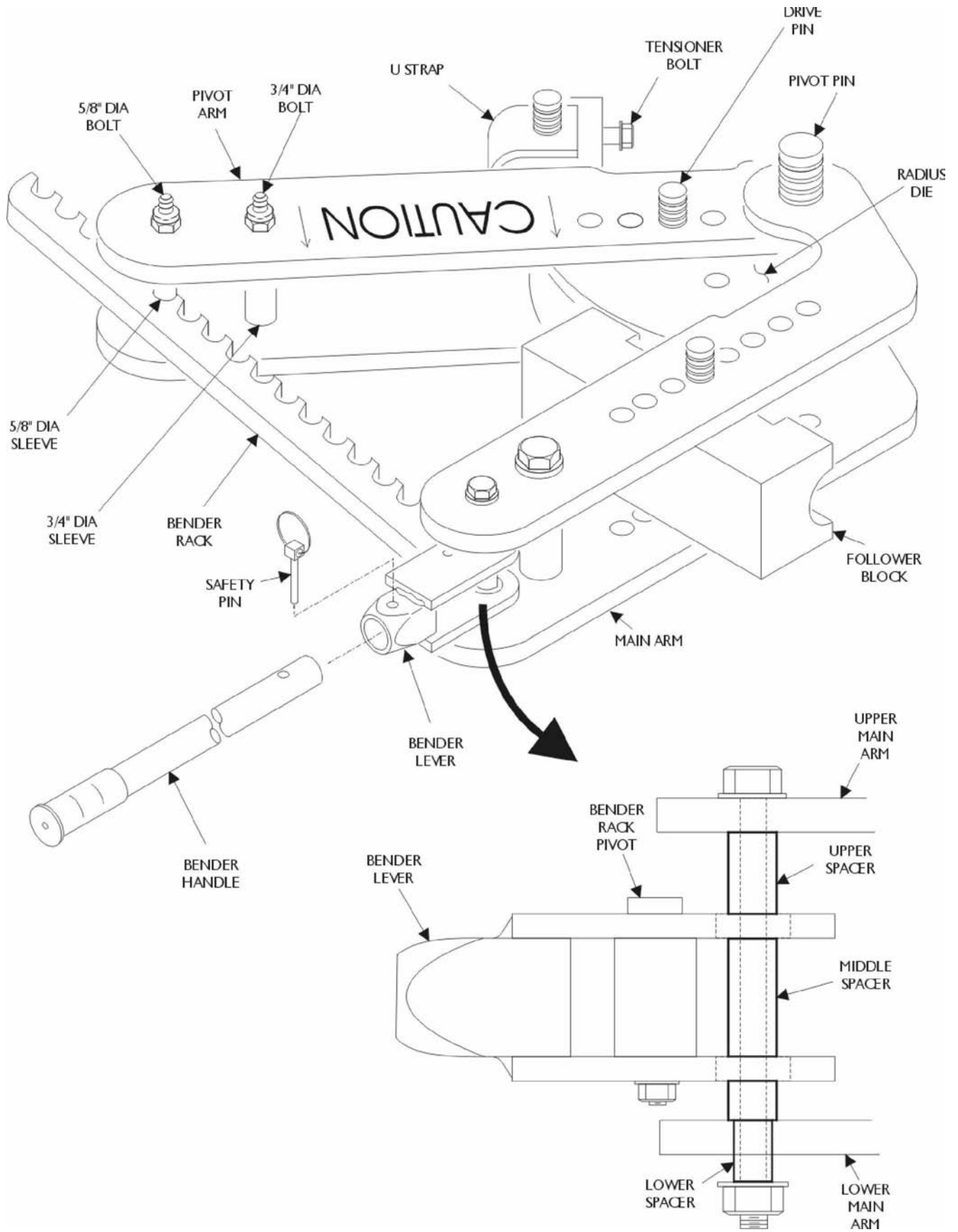


Figure 1. Bender overall view.

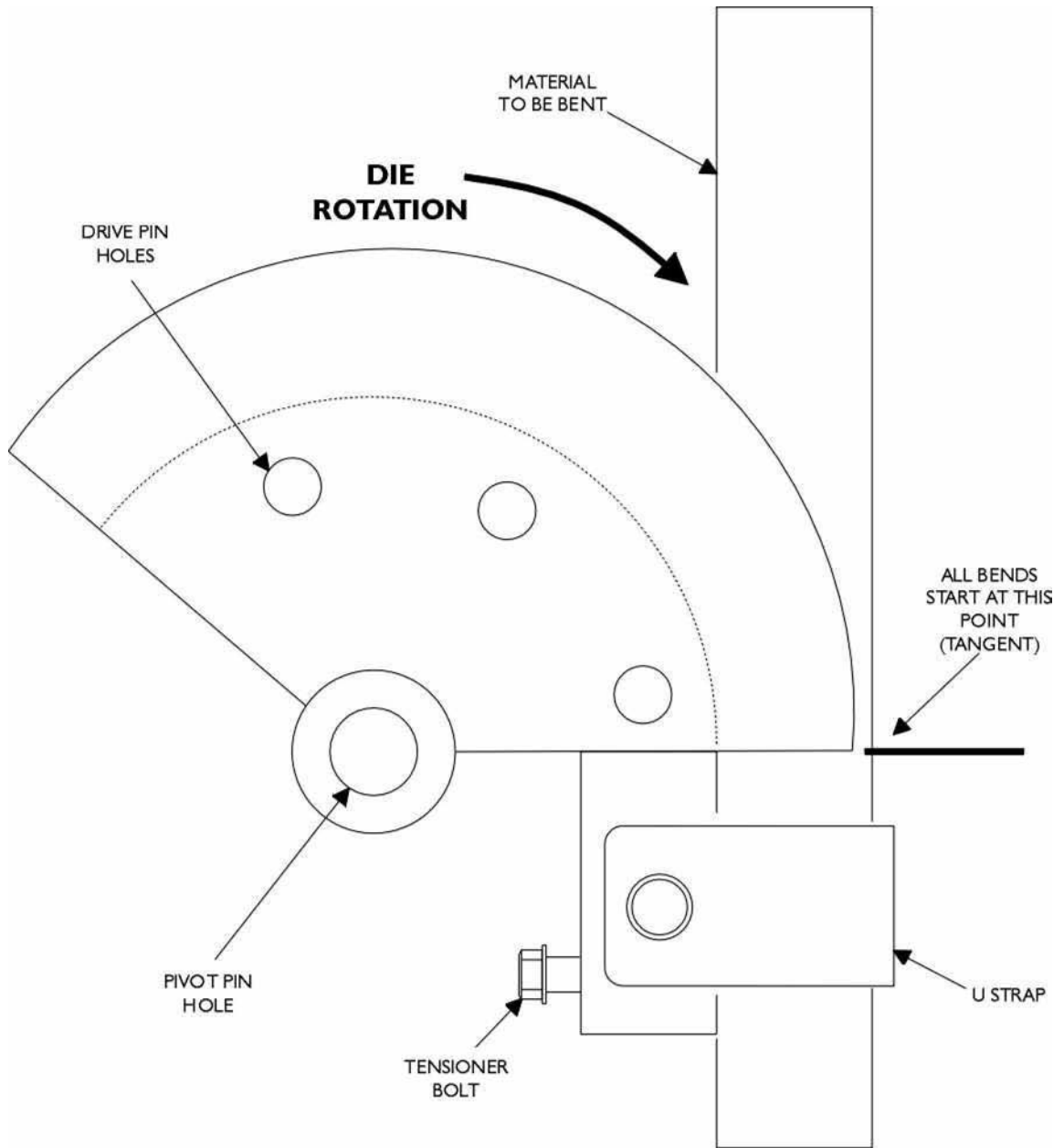


Figure 2. Bends start at edge of radius die.

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