



***UNRIVALLED QUALITY***

## MECHANICAL BENDER P/N MB1000

### WARNING

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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. Use of an impact wrench on the bender high/low drives will damage the internal drive mechanism and WILL void the warranty.

### NOTE

**JMR recommends that the MS1000 Mechanical Bender be mounted on the  
JMR Manufacturing's MBS100 Bender Stand.  
Optionally, the Mechanical Bender may also be mounted on a solid and secure work surface.**

## OPERATION OF THE BENDER

### **WARNING**

**This is a hand operated machine only.**

**Use of an impact wrench on the bender high/low drives will damage the internal drive mechanism and WILL void the warranty.**

1. Figure 1 is an overall view of the mechanical 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.
8. Make sure the release lever is in the UP position (CCW), See Figure 1.
9. Use of a 1/2" drive ratchet and a 3/4" socket is recommended to turn the bender drive mechanism.

### **WARNING**

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

10. The bender drive marked "HIGH" is for moving the drive rack fast or for bending lighter gauge material.
11. The bender drive marked "LOW" is for moving the drive rack at a slow rate and is used for bending heavier gauge material.
12. There is an approximate maximum of a 41° bend for each full stroke of the drive rack.
13. To bend tubing further than the 41°, the radius die must be indexed to the next drive hole.
14. Begin by first pulling and holding tension on the 1/2" ratchet in the direction of the bend. This will remove tension on the drive mechanism release lever (See Figure 1).
15. While still holding tension on the 1/2" ratchet, pull the release lever down (CW). See Figure 1.

### **WARNING**

**On some materials there could be a large amount of "spring back" after a bend is made. Please be aware that some materials could require as much as 1 to 1 1/2 turns to release this spring back tension. For safety, control the rotation of the 1/2" ratchet during the following steps.**

16. SLOWLY release the tension on the 1/2" ratchet removing the pin when tension on the pin is released and before the radius die starts to rotate.
17. Slowly retract the drive rack until the next radius die drive hole lines up with the pivot arm.
18. Re-install the pin fully and repeat the above bend process to complete the total bend.
19. Make sure the release lever is in the UP position (CCW), See Figure 1.
20. To repeat bends, without the degree wheel, measure the drive rack's total travel.

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21. When the tube is bent the desired amount, slowly retract the drive rack by pulling and holding tension on the 1/2" ratchet in the direction of the bend. This will remove tension on the drive mechanism release lever.
22. Pull the release lever down (CW). See Figure 1..
23. Slowly retract the drive rack allowing the drive pin to rotate the die and releasing the tube. It may be necessary to loosen the U-strap retaining bolt.
24. Remove the tube.
25. 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.

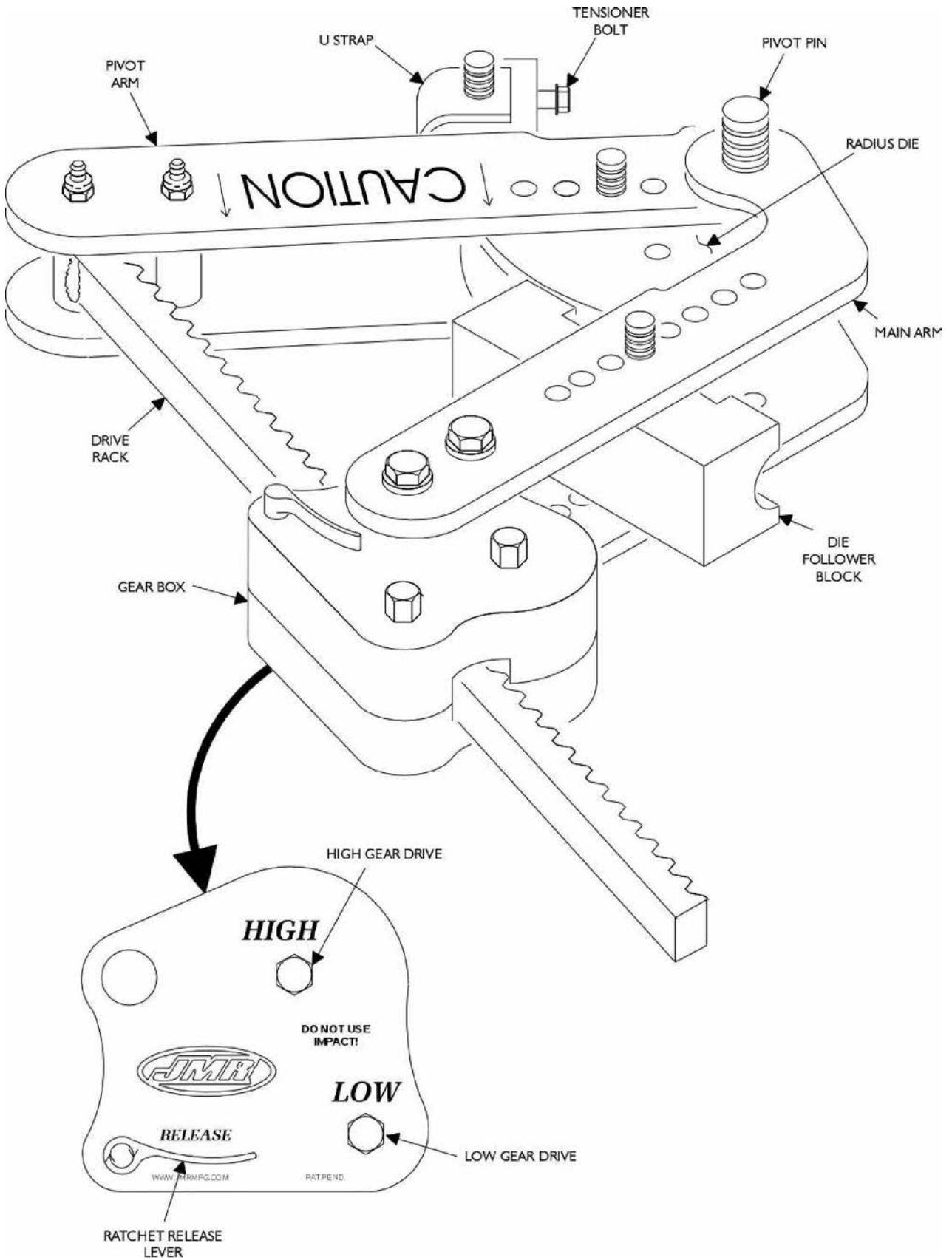
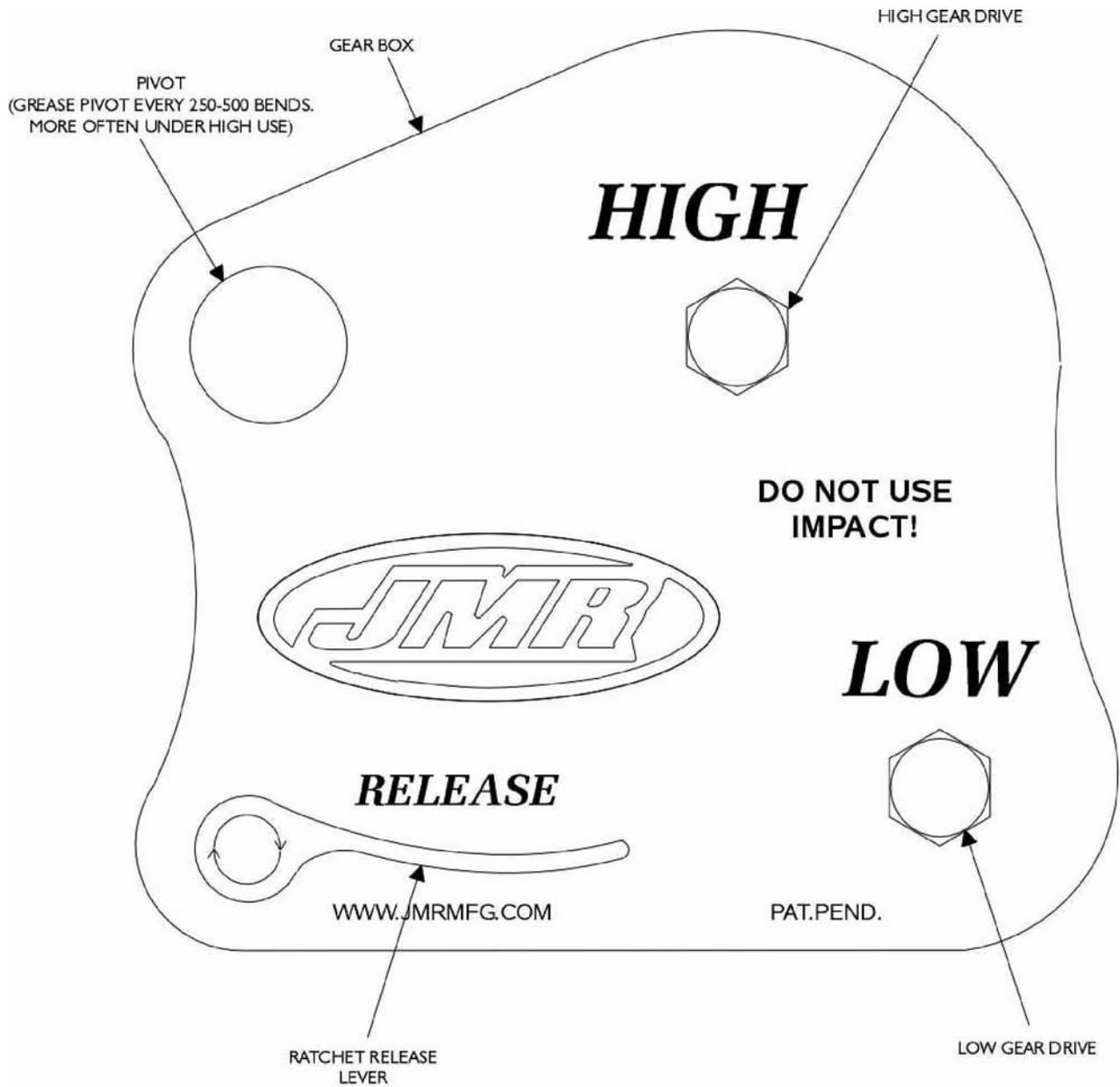


Figure 1. Bender overall view. (Sh. 1 of 2)



**DO NOT USE IMPACT ON THE GEAR DRIVES!**

Figure 1. Bender overall view. (Sh. 2 of 2)

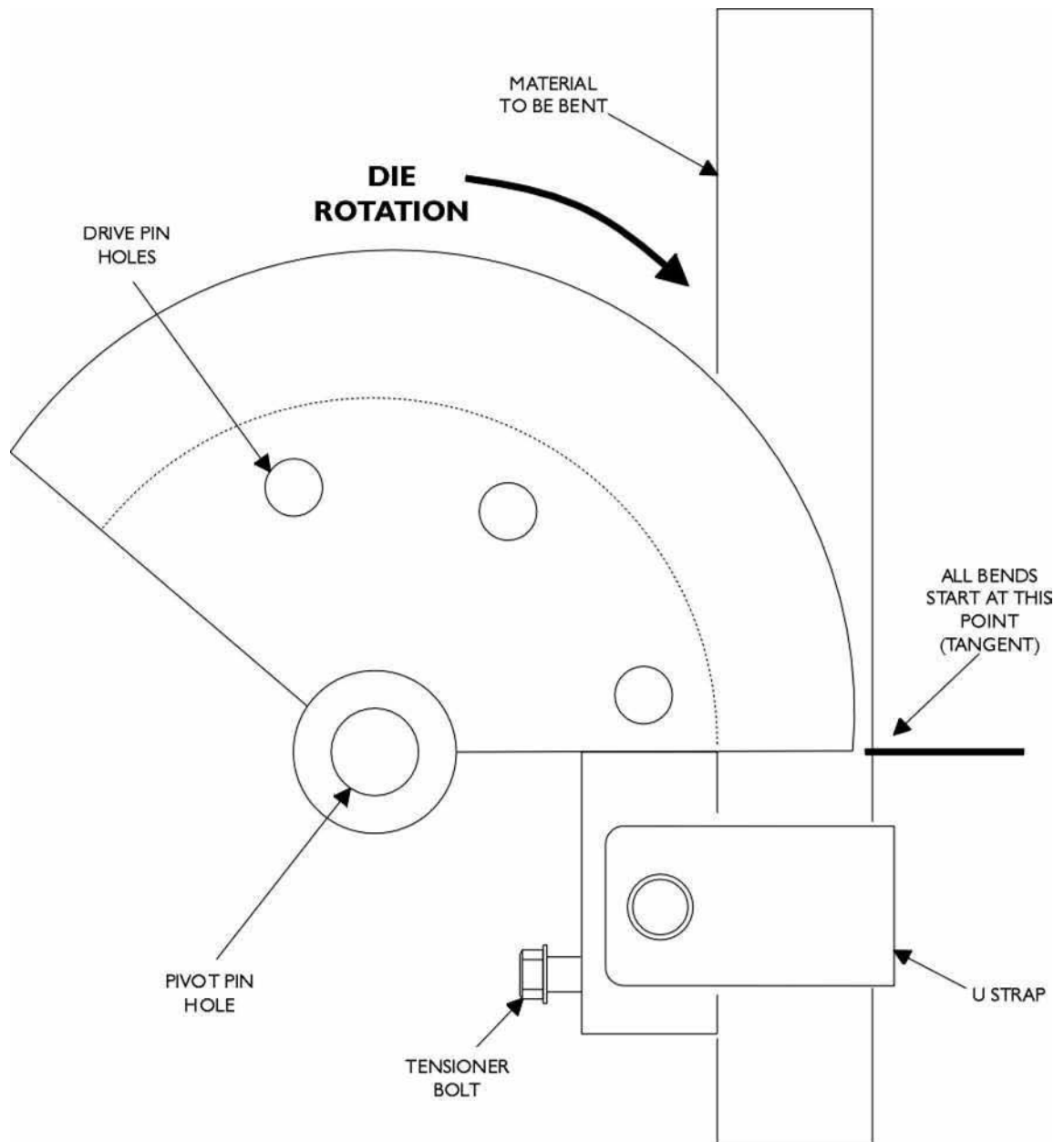


Figure 2. Bends start at edge of radius die.

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