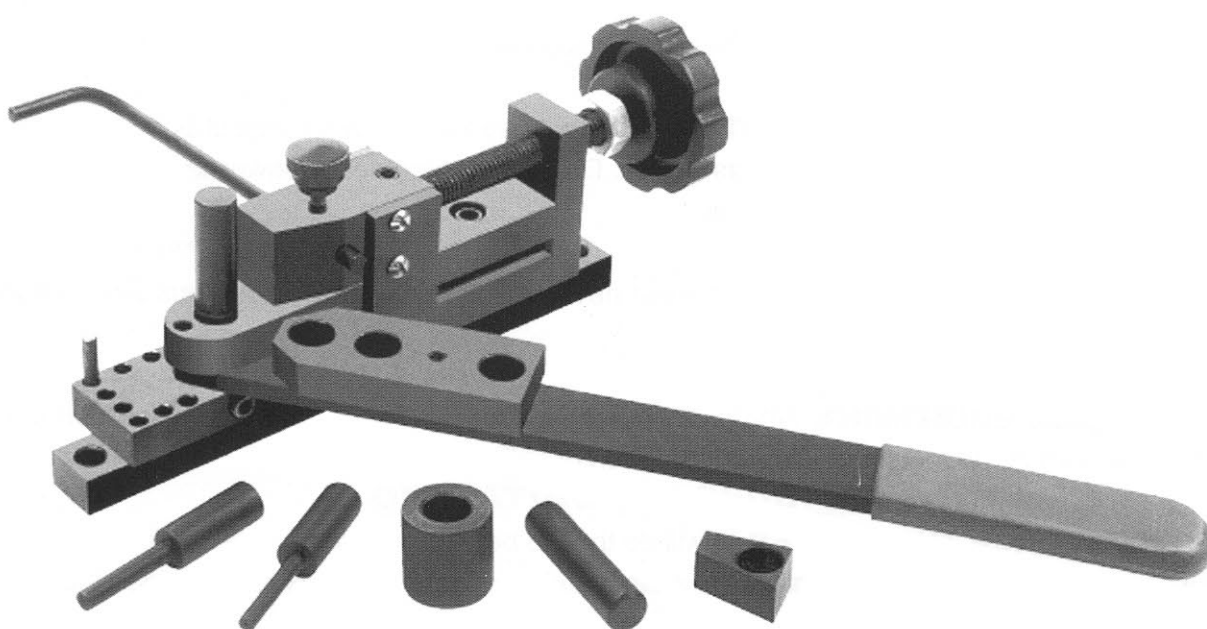


# UNIVERSAL BENDER

## Assembly and Operating Instructions



## **UNIVERSAL BENDER SPECIFICATIONS**

Capacities: 5/16" Diameter Wire  
1" x 1/8" Strip

Overall Size: 9" L x 3-1/2" H x 2-1/2" W (not including lever)

Weight: 8 Lbs

### **SAVE THIS MANUAL**

You will need this manual for the safety instructions, operating procedures, maintenance procedures, trouble shooting, parts list, and diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep both this manual and your invoice in a safe dry place for future reference.

### **READ ALL INSTRUCTIONS BEFORE USING THIS TOOL!**

1. **KEEP WORK AREA CLEAN.** Cluttered areas invite injuries.
2. **OBSERVE WORK AREA CONDITIONS.** Do not use tools in damp, wet, or poorly lit locations. Don't expose to rain. Keep work areas well lit. Do not use electrically powered equipment in the presence of flammable gases or liquids.
3. **KEEP CHILDREN AWAY.** Children must never be allowed in the work area. Don't let them handle the benders.
4. **STORE IDLE EQUIPMENT.** When not in use, tools must be locked up in a dry location without rust. Always lock up tools and keep out of reach of children.
5. **DO NOT FORCE THE BENDER.** It will do the job better and more safely at the rate for which it was intended. Do not use inappropriate attachments in an attempt to exceed the tool's capacities.
6. **USE EYE, EAR AND BREATHING PROTECTION.** Always wear ANSI approved impact safety goggles.
7. **DO NOT OVERREACH.** Keep proper footing and balance at all times.
8. **MAINTAIN TOOLS WITH CARE.** Keep tools clean for better and safer performance. Keep handles dry, clean, and free from oil and grease.

9. **STAY ALERT.** Watch what you are doing. Do not operate any machinery when you are tired.
10. **CHECK FOR DAMAGED PARTS.** Before using any tool, any part that appears damaged should be carefully checked to determine that it would operate properly and perform its intended function. Check for alignment and binding of moving parts, any broken parts or mounting fixtures, and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in the instruction manual.
11. **REPLACEMENT PARTS AND ACCESSORIES.** When servicing, use only identical replacement parts. Only use accessories intended for use with this tool.
12. **DO NOT OPERATE TOOL IF UNDER THE INFLUENCE OF ALCOHOL OR DRUGS.** Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate the tool.

## **UNPACKING**

Check against the list below to make sure all parts and accessories are included with your shipment.

Universal Bender  
Handle  
Short Shaft  
1/2" Shaft  
Gauge  
Stop Pin  
3/16" Shaft  
1/4" Shaft  
1" Circle  
Angle Die

## **OPERATING PROCEDURES**

**NOTE:** The Universal Bender must be clamped to a solid workbench or affixed in the T-slot of a stable machine tool.

### **To Make Eyes and Centered Eyes:**

1. Attach the Handle (#17) to the Working Plate (#2) using the 1/2" Shaft (#10) with or without the 1" Circle (#14), the 1/4" Shaft (#11), or the 3/16" Shaft depending upon your desired result. Secure the shaft with the Hex Head Screw (#22). When you are standing opposite the Vise Control Knob (#13), the handle should be to your right and as far as possible against the body of the bender.

2. Put the material you wish to bend in between the selected shaft and the Vise (#6) and clamp it down as shown in Figure 1.

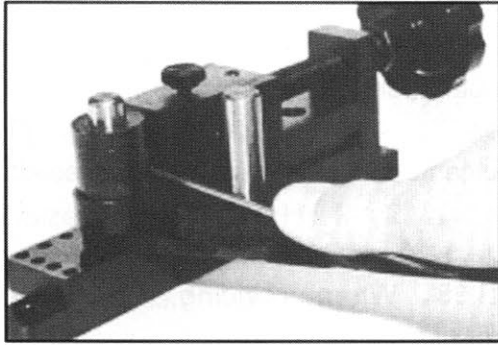


Figure 1

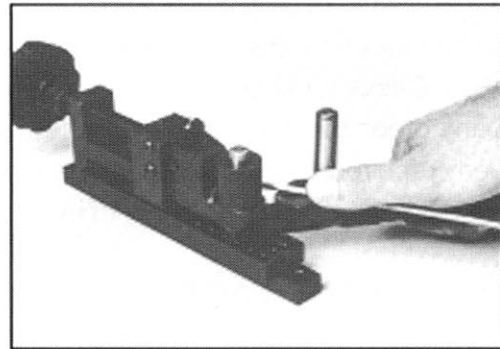


Figure 2

3. Put the Short Shaft (#9) into one of the handle's holes. Use the hole as close to the bender as the material will permit.
4. Hold the material lightly with your thumb to ensure parallel results (if desired).
5. Pull the handle in a clockwise direction for a 1/4 turn. This should result in a 90 degree bend. If desired, you may insert the Stop Pin (#16) at the appropriate hole for repetitive bends. Typically, this will be the hole at the front of the bender (furthest away from the Vise Control Knob), second from the right as shown in Figure 2.
6. Loosen the vise. Position the material so that your bend is opposite the handle when it is in the starting position. The straight part of the material should be extending out towards the handle; a slight amount of the bend should be clamped when the vise is tightened.
7. Re-clamp the material. Continue the above process until the material makes one full revolution. A slight over bending on the final step is required due to spring back, as shown in Figure 3.
8. If you are working with heavy gauge wire, it may be necessary to use the Sharp Angle Plate (#15) to prevent slipping. If this becomes necessary, it should be put on its side with the angle portion facing up with one side of the hole facing the vise and the other the shaft being used, as shown in Figure 4.

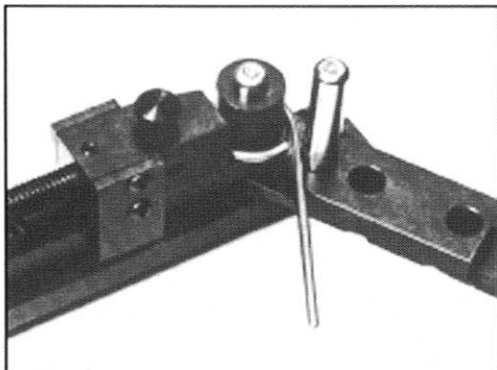


Figure 3

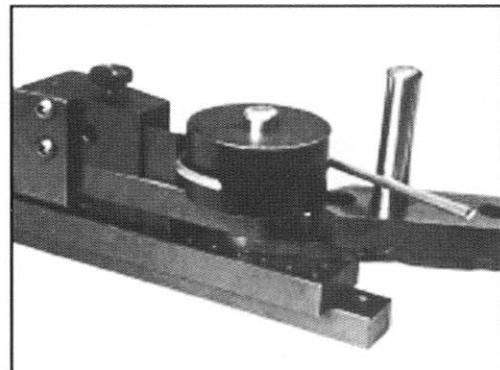


Figure 4

9. If you wish to center the eye, position the handle so that the material is on the opposite side of the handle. This will allow the handle to be moved counterclockwise.
10. Re-clamp the material in such a way that the straight section is at right angles to the vise.
11. Move the handle counterclockwise until it meets the bender, as shown in Figure 5.

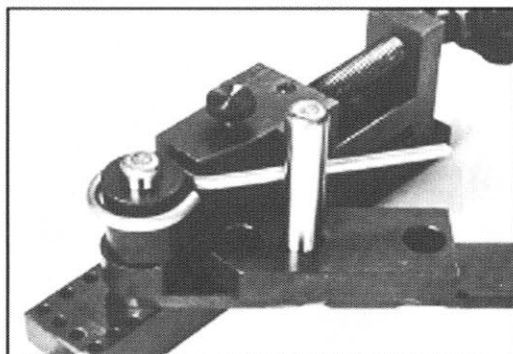


Figure 5

### **Bending Coils and Loops:**

1. Repeat the top seven steps.
2. For loops and coils, you must lift the material slightly on the third bend to allow it to rise above the already bent material as shown in Figure 6.
3. If you are doing coils, you may want to use a spacer for the repetitive bends to ensure that the spaces between the loops are even and regular as shown in Figure 7.

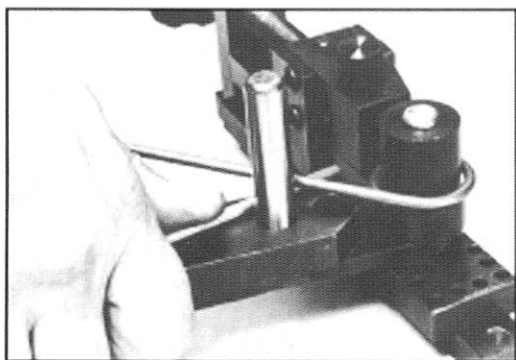


Figure 6

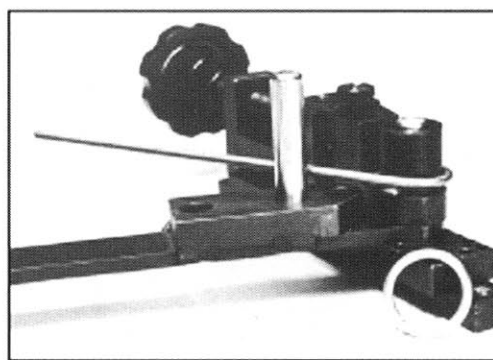


Figure 7

### **To Make "S" Shapes:**

1. Use the 1" Circle with the 1/2" Shaft on the body as described in step 1 of "Eyes and Centered Eyes".
2. Put the Sharp Angle Plate onto the short shaft on the handle as shown in Figure 8.
3. Use a short section of stock approximately 2-3/4" to 3" in length. Clamp your stock in the vise so that the edge of the material is even with the edge of the circle.

4. Make a complete clockwise bend.
5. Leaving the handle in the left most position, move the material so that the first loop is on the angled side of the vise's jaw and the edge of the stock is even with the edge of the circle as shown in Figure 9.

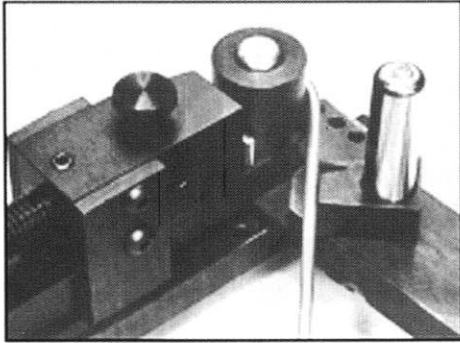


Figure 8

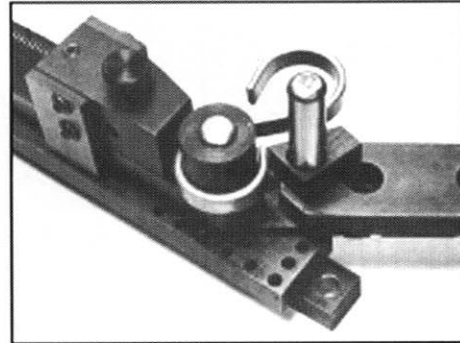


Figure 9

6. Make a complete counterclockwise bend.

### **Using the Gauge:**

1. The gauge (#23) is used when you need more than one piece bent at precisely the same length.
2. Simply insert the gauge into the side of the bender so that the end of it is the exact distance away from the bender for the length of stock you need. Tighten the gauge clamp (#24) as shown in Figure 10.
3. Use the gauge and the stop pin when you need to make squares. It will enhance your final results immensely as shown in Figure 11.

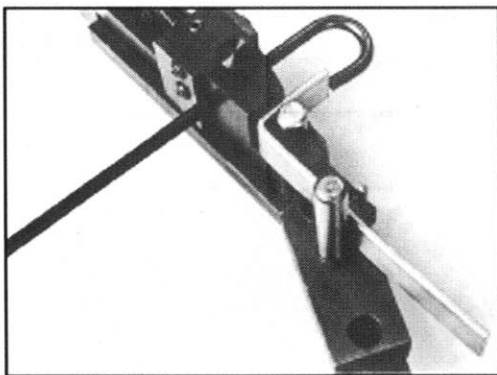


Figure 10

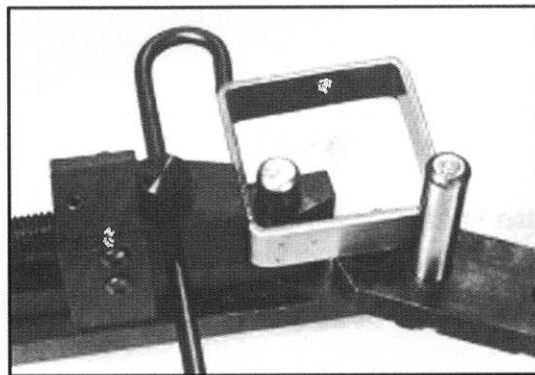


Figure 11

## **PARTS LIST**

Part #	Description	Qty
1	Base	1
2	Working Plate	1
3	Small Plate	1
4	Slide Track	1
5	Vise Body	1
6	Right Vise Plate	1
7	Left Vise Plate	1
8	Connecting Plate	1
9	Short Shaft	1
10	1/2" Shaft	1
11	1/4" Shaft	1
12	3/16" Shaft	1

Part #	Description	Qty
13	Vise Control Knob	1
14	1" Circle	1
15	Angle Plate	1
16	Stop Pin	1
17	Handle	1
18	M12 Cap Nut	1
19	M6x35 Screw	1
20	Connecting Screw	2
21	M5x12 Screw	4
22	M8x9 Hex Head Screw	2
23	Gauge	1
24	Gauge Clamp	1

