

Micro-Mark[®]

#84734 MICROLUX 7-1/2" SHEAR/BRAKE ASSEMBLY AND OPERATING INSTRUCTIONS



Made in China to Micro-Mark Specifications

Distributed by Micro-Mark

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SPECIFICATIONS

Base dimension		9" × 5"
Blade length		8"
Maximum shearing and bending length		7-1/2"
Maximum bending thickness		.025"
Recommended Maximum Thickness* for shearing <u>soft</u> grades of these materials	Aluminum	.031"
	Copper	.031"
	Circuit board and plastics	.062"
	Steel sheet metal	.025"
	Brass	.031"

**Note: Do not combine maximum thickness with maximum length.*

SAVE THIS MANUAL

This manual contains important safety warnings and cautions, assembly instructions, operating procedures and maintenance procedures, troubleshooting information, parts lists and diagrams. **Keep your invoice with this manual. Write the invoice number on the inside of the front cover.** Keep the manual and invoice in a safe, dry place for future reference.

SAFETY WARNINGS AND CAUTIONS

READ ALL INSTRUCTIONS BEFORE USING THIS TOOL!

- 1. KEEP WORK AREA CLEAN.** Cluttered areas invite injuries.
- 2. OBSERVE WORK AREA CONDITIONS.** Do not use machine in damp, wet, or poorly lit locations. Don't expose to rain. Keep work area well lit.
- 3. KEEP CHILDREN AWAY.** Children must never be allowed in the work area. Do not let them handle machines or tools.
- 4. STORE IDLE EQUIPMENT.** When not in use, tools should be locked up in a dry location to inhibit rust. Always lock up tools and keep out of reach of children.
- 5. DO NOT FORCE THE TOOL.** 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 THE RIGHT TOOL FOR THE JOB.** Do not attempt to force a small tool or attachment to do the work of a large industrial tool. Do not use a tool for purposes for which it was not intended.
- 7. DRESS PROPERLY.** Do not wear loose clothing or jewelry as they can be caught in moving parts. Protective, electrically non-conductive clothes and non-skid footwear are recommended when working. Contain long hair.
- 8. USE EYE PROTECTION.** Always wear ANSI approved impact safety goggles. Wear a full-face shield if you are producing metal filings or wood chips. Wear an ANSI approved dust mask or respirator when working around metal, and chemical dusts and mists.

9. **DO NOT OVERREACH.** Keep proper footing and balance at all times. Do not reach over or across machine.
10. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. The handles must be kept clean, dry, and free from oil and grease at all times.
11. **REMOVE ADJUSTING KEYS AND WRENCHES.** Make it a habit to check that keys and adjusting wrenches are removed from the tools or machine work surface before plugging it in.
12. **STAY ALERT.** Watch what you are doing; use common sense. Do not operate any tool when you are tired.
13. **CHECK FOR DAMAGED PARTS.** Before using any tool, any part that appears damaged should be carefully checked to determine if it will 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 a qualified technician.
14. **GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerator enclosures.
15. **REPLACEMENT PARTS AND ACCESSORIES.** When servicing, use only identical replacement parts. Use of any other parts will void the warranty. Only use accessories intended for use with this tool. Approved accessories are available from the distributor.
16. **DO NOT OPERATE TOOL IF UNDER THE INFLUENCE OF ALCOHOL OR DRUGS.** Read warning labels on prescriptions to determine if your judgment of reflexes are impaired while taking drugs. If there is any doubt, do not operate the tool.

Note: The warnings and instructions contained in this instruction manual cannot cover all possible conditions and situations that may occur when using this tool. It must be understood that common sense and caution are important factors that cannot be built into this tool. The person operating this piece of equipment must supply these factors.

MOUNTING, ASSEMBLY AND ADJUSTMENT

Mount this Tool to a Sturdy Workbench

Before using this tool, secure it cross-wise to a sturdy workbench (with the handle clearing the edge of the bench) with four heavy-duty bolts (available from your local hardware store) passing through the holes in the mounting feet of the base casting. Be sure that you position the tool so that your hand will clear the edge of the bench when you pull on the handle. We recommend the use of the largest bolts that will pass through the holes in the mounting pads of the tool. These bolts should pass through the entire thickness of the bench. Use large flat washers and nuts to secure the bolts and to distribute the force required to actuate the ram.

Handle Assembly

Attach handle to machine in any of four positions so that it can be operated comfortably. Tighten set screw to secure.

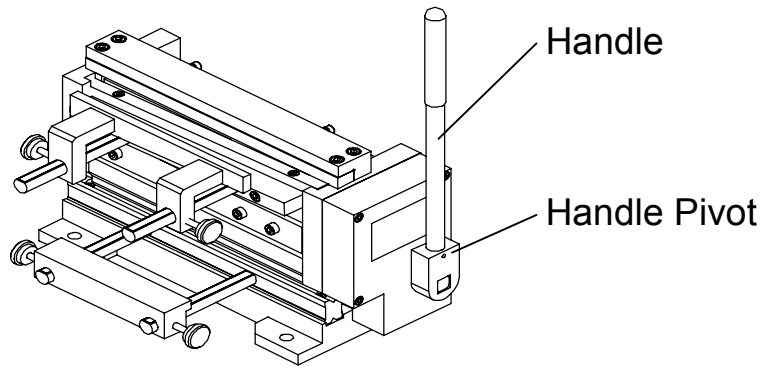


Figure 1 – Handle Installation

Bending Tool Adjustment and Removal

The bending tools come in various width blades and can be used to form numerous sizes of boxes and pans. When forming a smaller box or pan, choose the desired size bending tool blade, center it and remove the others. See the steps below for adjustment instructions.

Step 1: Loosen the hex head screws holding the bending tool blades in place.

Step 2: Remove any unneeded bending tool blades by sliding them out the left side of the Shear/Brake and to the rear of the workbench.

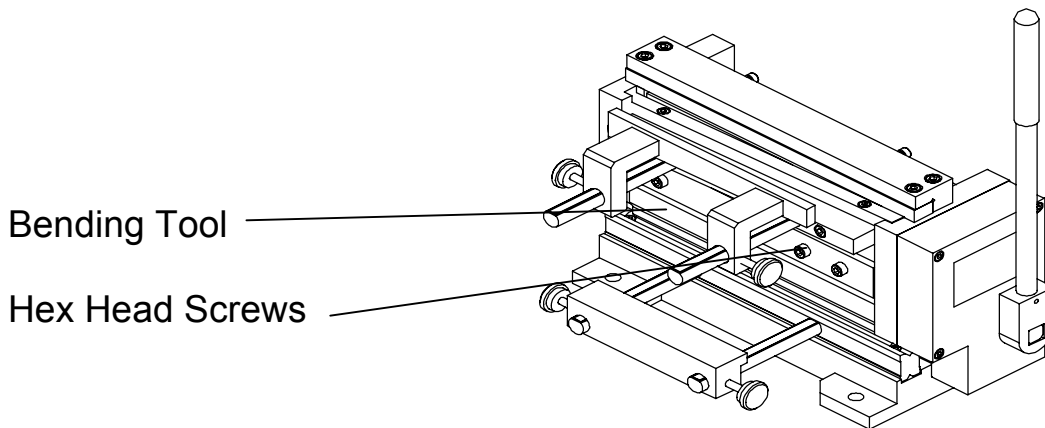


Figure 2 – Bending Tool Removal

Step 3: Insert the appropriate bending tool behind the clamping bar.

Step 4: Move the handle to lower the installed bending tools. This will locate the position of the bending tools in proper alignment. Tighten the hex head screws.

Bending Prism Adjustment

You can adjust the radius of the bend you will make by changing the bending prism as described below.

Step 1: Loosen the clamp screw located on the backside of the Shear/Brake as shown in figure 3.

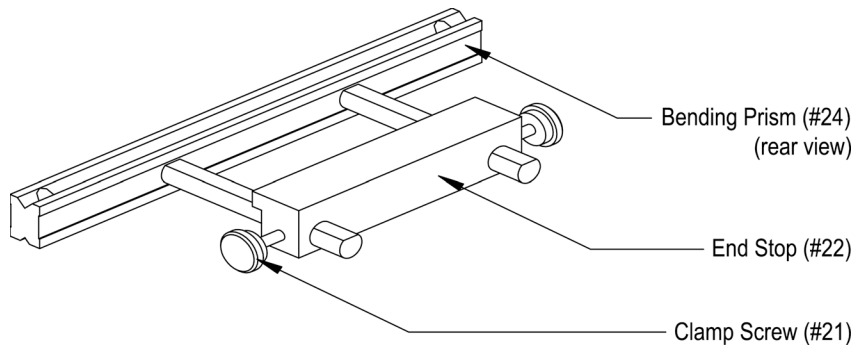


Figure 3 – Loosening the Clamp Screw

Step 2: Raise the handle to lift the bending assembly ram.

Step 3: Lift the bending prism out of the groove in the base. Pull the bending prism forward out of the end stop.

Step 4: Rotate the bending prism 180° to use the optional radius as shown in Figure 4. Fit the bending prism back into the groove.

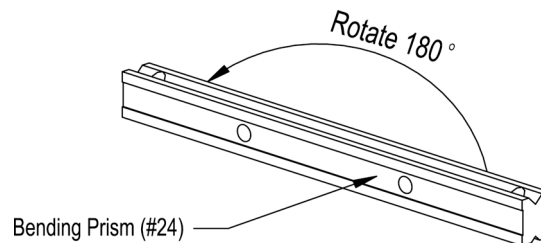


Figure 4 – Rotating the Bending Prism

Step 5: Slide the end stop back onto the bending prism. Tighten the clamp screw.

Notes:

Screws may be used to secure the prism in its groove if so desired, but you'll need to remove the tool from its mounting in order to install screws.

Use T-block (38) as a gauge to set the bending blades into the ram. The smaller blades, when used in combination, will then be located at the same height when installed. Place the T-block upside down in the prism channel and lower the ram with loosened blades onto it. Then secure screws for alignment.

Removal and Installation of Upper Cutter

Step 1: Move the handle to lower the lower cutter.

Step 2: Loosen the four mounting screws holding the upper cutter in place.

Step 3: Remove the upper cutter. If you have not used all four cutting edges, you can rotate the upper cutter to expose a sharp edge and reinstall. Loosen adjuster screws (19).

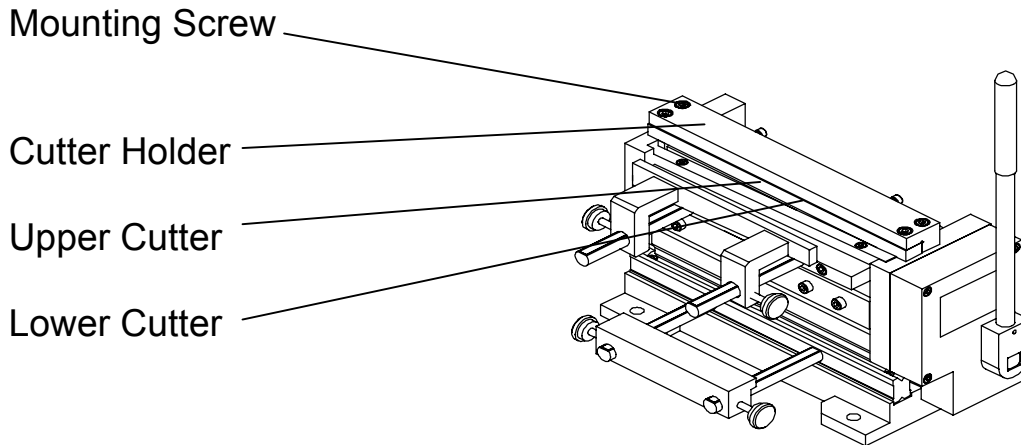


Figure 5 – Removing the upper Cutter

Step 4: Align the upper cutter so that it is flush with the lower cutter and slightly snug its mounting screws.

Wind the adjuster screw nuts a turn or two towards the screw heads.

Tighten the screws slightly, alternating between them to advance the upper cutter toward the raised lower blade. When contact is made across the entire blade length, lower the lower blade and attempt to shear a single sheet of paper. If the blades jam, you will need to push the upper blade back in slightly. If the paper bends upward, the upper blade must be advanced forward with the screw(s) on that side until you can successfully shear the paper. Once the shearing action is correct, fully tighten the 4 top screws and tighten the nuts down on the adjuster screws without moving the screws.

Removal and Installation of Lower Cutter

Step 1: Move the handle to raise the lower cutter.

Step 2: Loosen and remove the two mounting screws for the ram as shown in Figure 6.

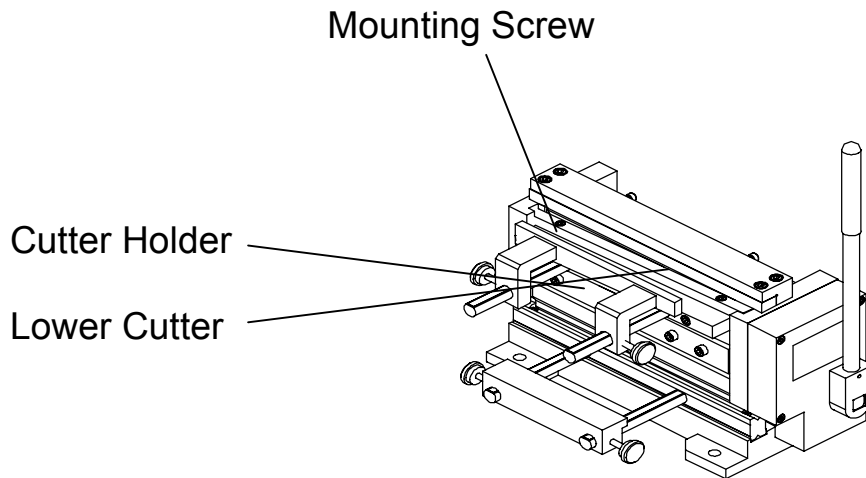


Figure 6 – Removing the Lower Cutter

Step 3: Press the flat of the lower cutter against the upper cutter with your thumb and lower the handle. This will separate the lower cutter from the cutter holder.

Step 4: Remove and replace the lower cutter. There are four cutting edges on the lower cutter. If you have not used all four cutting edges, you can rotate the lower cutter to expose a sharp edge and reinstall.

Step 5: Press the lower cutter down against the cutter holder.

Step 6: Raise the handle. Insert and tighten the mounting screws.

Step 7: Check for proper shearing action with a sheet of paper as described previously in Step 4 on page 6.

OPERATION

Shearing

Step 1: Make sure the material you will be shearing is within the capacity of the tool. Do not use material that is thicker than the rated capacity for your Shear/Brake. **See page 2 for specifications.**

Step 2: Scribe the cutting mark on the material.

Step 3: Slide the material between the upper cutter and the lower cutter so that the upper cutter is positioned directly above the mark, as shown in Figure 7.

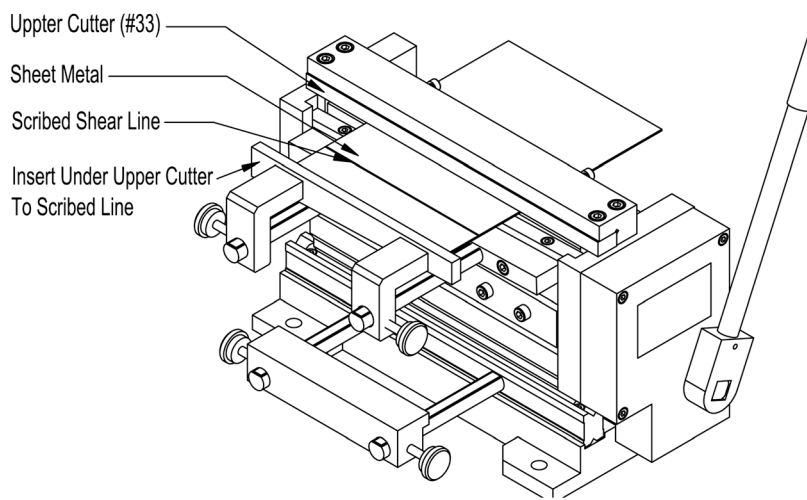


Figure 7 – Inserting scribed sheet metal

Step 4: While holding the material steady, lower the handle until the material has been cut.

Angle Bending

Step 1: Make sure the material you will be bending is within the capacity of the tool. Do not use material that is thicker than .025 inch.

Step 2: Use the appropriate bending tools and bending prism radius for your needs. Refer to the previous paragraphs for set-up instructions.

Step 3: Mark the workpiece where you want to bend the material.

Step 4: Place material above the bending prism.

Step 5: Align the bending mark with the front edge of the bending tool.

Step 6: Lower the handle until the desired angle has been formed. Use a protractor or other measuring tool to ensure accuracy.

Pan Forming

The Brake can used to make various sizes of pans.

Step 1: Pre-measure and cut your material before bending. Notch the corners according to the desired lip height as shown in Figure 8.1.

Step 2: Insert material between the bending tool(s) and bending prism. Bend the material until a 90° angle has been formed as shown in Figure 8.2.

Step 3: Rotate the material 90° counter-clockwise. Allow the completed side to extend just beyond the dies. Bend the second side.

Step 4: Repeat Step 3 for the third side.

Step 5: Rotate to the last side, and insert workpiece between the dies. Your formed sides will be on the outside of the dies.

Step 6: Before bending, tap one corner nearer to the middle of the machine as shown in Figure 8.3. This will allow the material to clear the upper die when raised.

Step 7: Bend the fourth side.

Step 8: Using a block or piece of wood, tap the corner of material back into place.

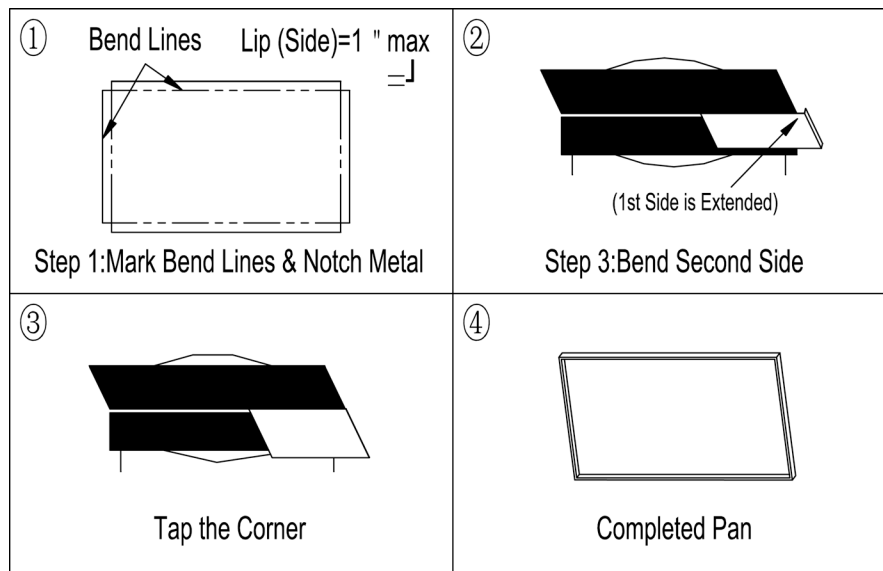


Figure 8 – Pan Forming

Radius Bending

Radius bending is most commonly used to make cylinders and cones, as shown in Figure 9. Both shapes are formed by making a series of small, closely spaced bends in the workpiece.

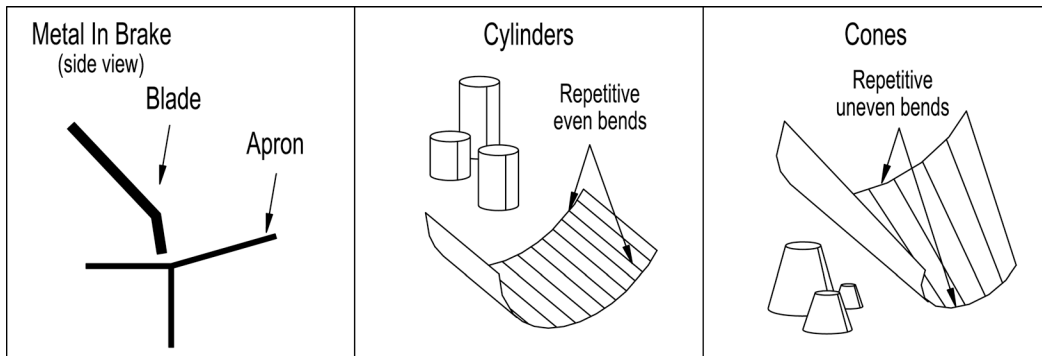


Figure 9 – Radius Bending

For cylinders, the bends are evenly spaced, i.e. every bend is identical.

For cones, simply move one side of your stock out further than the other every time you make a bend.

Note: This tool is equipped with end stops that can be adjusted for repeated shearing or bending of duplicate workpieces.

WARRANTY

This machine is warranted against manufacturing defects (but not user abuse) for a period of 90 days from date of receipt (whether to put into operation or stored). If a defect is found, please contact Micro-Mark first at the Tech Support line shown on the cover of this manual. User replaceable parts will be shipped to the user by Micro-Mark for installation by the user.

This machine is intended for shearing and bending soft-temper sheet metal, printed circuit board material and plastic sheet only. Compared to small benders and shears commonly available for hobby use, this machine is heavy-duty, but is not intended for industrial-type applications or production use. Any attempt to shear or bend material beyond the intended use (shown in the specifications on page 2 of this manual) may cause damage beyond repair, and will void the warranty.

PARTS LIST

No.	Description	Qty.	No.	Description	Qty.
1	Base	1	26	Press plate	1
2	Screw M5*20	4	27	Bending tool – wide blade	1
3	Driver shaft	1	28	Lower cutter end block	1
4	Bushing	2	29	Sleeve	2
5	Fan gear	1	30	Ram	1
6	Handle	1	31	Lower cutter	1
7	Round pin 5-40	1	32	Screw M4-12	2
8	Driver shaft	2	33	Upper cutter	1
9	Gear	1	34	Upper cutter press plate	1
10	Set screw M4-6	1	35	Nut M4	2
11	Handle pivot	1	36	Screw M5-25	4
12	Screw M4-35	4	37	Bending tool – blade set	1
13	Gear cover	1	38	T-block	1
14	Screw M6-30	2	39	Label	1
15	Taper pin 4-16	2	40	Small shaft (A)	2
16	Gear support	1	41	End block	1
17	Gear	1	42	Move block (right)	1
18	Round pin 10-35	1	43	Move block (left)	1
19	Screw M4-25	4	44	Screw M4-10	2
20	Small shaft	2	45	Upper cutter label	2
21	Lock screw	4			
22	Orientation block	1			
23	Staff gauge	2			
24	Worktable	1			
25	Screw M5-12	4			

