

KAKA® Industrial

Specifications

Max.pressure.....	8 ton
Max.ram strike.....	4.7"+2.4"
Packing size	3"x1.4"x1.2"
N.W./G.W.	101/106 lbs



Unpacking

The Pipe bender is shipped from the manufacturer in a carefully packed carton. Thoroughly inspect the product upon opening the package. After unpacking the unit, carefully inspect for any damage that may have occurred during transit. Check for loose, missing, or damaged parts. Shipping damage claims must be filed with the carrier and are the responsibility of the user.

Warning

This manual may not cover all possible situations; please follow warnings and instructions carefully.

Save this manual

This manual provides crucial safety guidance, assembly instruction, operating procedures, parts list, and diagram. Put both your manual and invoice in a safe, dry place for future reference.

Prepare for Safe Operation

1. Wear appropriate clothing, avoiding loose items and jewelry that could entangle in machine parts.
2. Wear protective hair covering to cover long hair.
3. Wear safety shoes with non-slip soles.
4. Wear safety glasses meeting local standards; regular glasses lack the impact resistance of safety glasses.
5. Be alert and think clearly. Never operate tools when tired, or when taking medications that cause drowsiness.

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READ INSTRUCTIONS

Thoroughly read and understand this manual before using this machine. Save for future reference.



LIFTING HAZARD

•This tool is heavy. Use extreme caution when lifting or setting up. Personal injury and tool damage could occur if tool is dropped.

•Get assistance when moving or lifting to avoid back injury.



PINCH HAZARD

The moving parts of this tool exert great force when operating. Keep fingers and hands away from moving parts to avoid serious injury.



CUT HAZARD

Wear appropriate work gloves and protective clothing. Tubing may have sharp edges which can cause cuts to hands and arms.



EYE INJURY HAZARD

Wear appropriate eye protection. Metal chips can be ejected during the bending process.

Prepare Safe Working Area

1. Keep work area clean. Cluttered work areas invite accidents.
2. Work area should be properly lighted.
3. Keep visitors at a safe distance from work area.
4. Keep children out of workplace. Make workshop childproof. Use padlocks to prevent any unintentional use of tools.
5. Be sure there is sufficient workspace around the tools for work.

Tool Should Be Maintained

1. Consult manual for specific maintaining and adjusting procedures.
2. Keep tool lubricated and clean for safest operation.
3. Adopt a continuous maintenance program to keep your machine in good working condition.
4. Keep all parts in working order. Check to determine that the guard or other parts will operate properly and perform their intended function.
5. Check for damaged parts. Check for alignment of moving parts, binding, breakage, and mounting or any other condition that may affect a tool's operation.
6. Any damaged part should be properly

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repaired or replaced. Do not perform makeshift repairs. (Use parts list provided to order repair parts.)

Know How to Use Tool

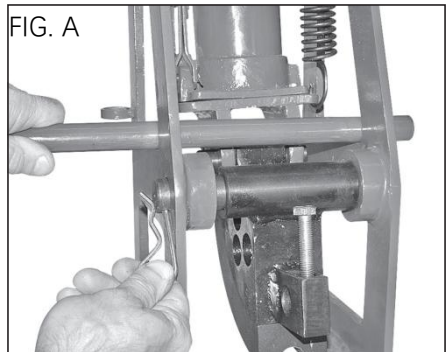
1. Assemble only according to these instructions. Improper assembly can create hazards.
2. When tools are not in use, store them in a dry, secure place out of the reach of children. Inspect the tools prior to storage and before re-use.
3. Maintain product labels and nameplates. These carry important safety information.

Installation and Assembly

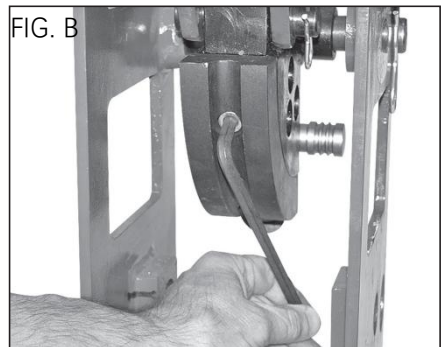
This machine must be securely mounted to a solid surface before using. Operating the tool for certain operations will require exerting considerable force on the handle, thus it is essential that the tool be mounted to a heavy or immovable work bench or other work surface. Be certain there will be adequate clearance for the entire range of motion of the handle with no potential pinch points for the operator's hands.

INSTALL 3/4" OR 1-1/2" DIES AND ROLLERS

1. Pull Retaining Pin from Lower Roller Shaft, remove shaft and Roller Die (FIG. A).



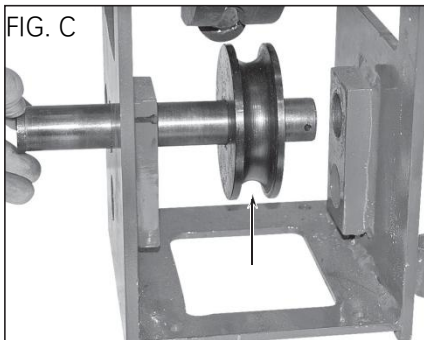
2. Loosen and remove 2 socket head cap screws from Forming Die face with a 5/16" hex key wrench (FIG. B).



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3. Place the selected size Forming Die over the Die Block, replace the 2 socket head cap screws and tighten with a 5/16" hex key wrench.

4. Holding the selected size Roller Die (matched to Forming Die size), slide Roller Die Shaft through the upper of two frame holes, through the Roller Die then through opposite hole in frame (FIG. C).



5. Replace retaining pin.

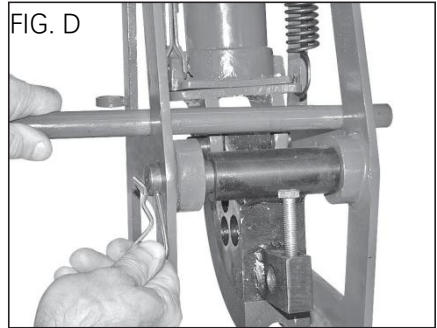
INSTALL LARGER 1-5/8" OR 1-3/4" DIES AND ROLLERS

DISASSEMBLY FOR REMOVAL

1. Pull Retaining Pin from Lower Roller Shaft, remove shaft and Roller Die (FIG D).

2. Place Jack Handle through the triangular openings of the frame toward the angled side and in front of the Jack

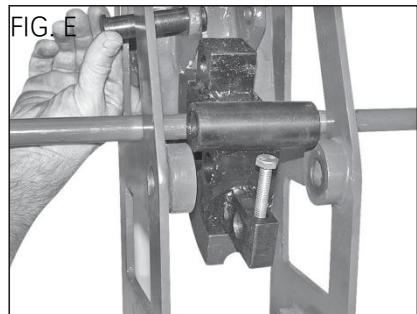
Pivot Pin (FIG D).



3. While supporting the Die Block with your opposite hand, remove Retaining Pin and Shaft from Frame and Die Block (FIG E).

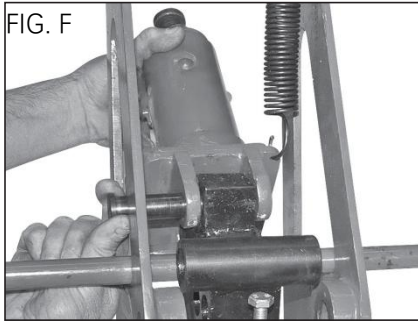
CAUTION

The Die Block assembly is heavy.



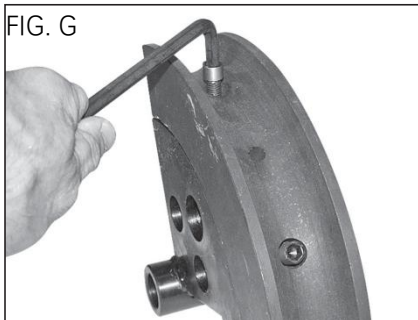
4. Continue to support the Die Block with your hand while removing the Jack Pivot Shaft Retaining Pin and Shaft from the Jack Base (FIG F).

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5. The Die Block will be free and The Jack will now be supported by hanging from the Tension Spring.

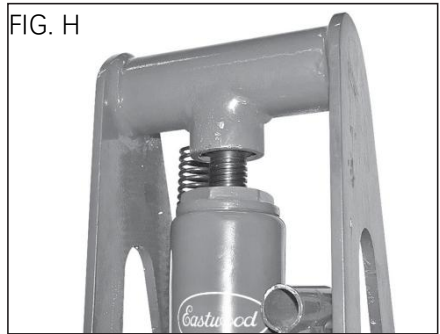
6. Loosen and remove 2 socket head cap screws from Forming Die face with a 5/16" hex key wrench (FIG G).



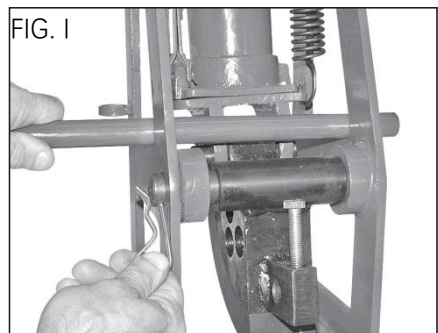
7. Place the selected size Forming Die over the Die Block, replace the 2 socket head cap screws and tighten with a 5/16" hex key wrench.

REASSEMBLY

1. Be sure the Top Pad of the Jack post is in place in the Socket at the top of the Frame (FIG H).

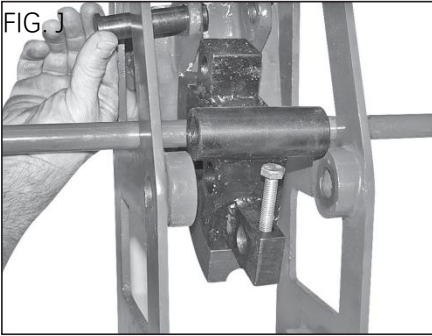


2. While supporting the Die Block in your hand, Slide the Die Block Shaft through the hole in the Frame, through the Die Block and through the opposite Frame hole (FIG I). Replace Retaining Pin.

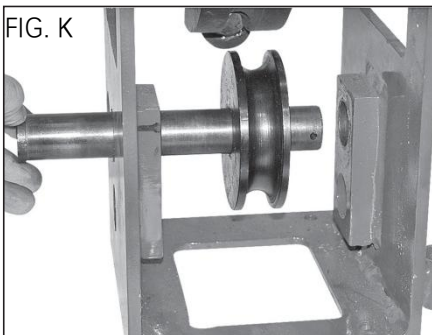


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3. Keep the Die Block rotated in the up position and slide the Jack Pivot Shaft through the Jack Base and Die Block (FIG J) then replace Retaining Pin.



4. Holding the selected size Roller Die (matched to Forming Die size), slide Roller Die Shaft through the upper of two frame holes, through the Roller Die then through opposite hole in frame (FIG K). Replace Retaining Pin.



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TUBING LAYOUT DATA

Use this chart when laying out your project to help determine the amount of tubing needed.

The following figures are representative of the average linear amount of tubing required for a given size and the bend radius it will yield at a maximum angle of 90°. Please note that 90° is not achievable on all tubing and is dependant upon the particular wall thickness, diameter and hardness of the tubing used. These figures are for the Length of the bend portion only. An additional 1-1/2" of straight section per bend is required as it is clamped in the Die Block.

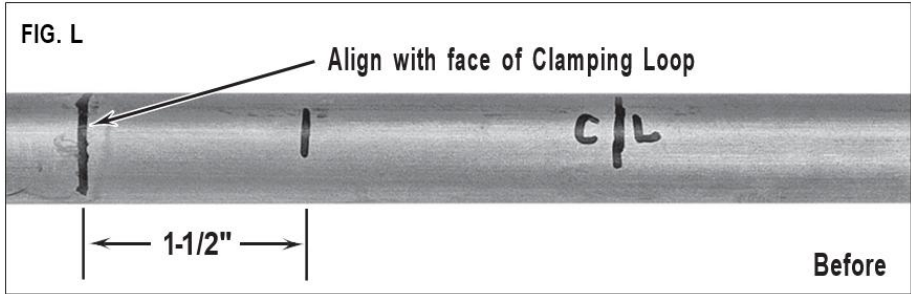
Tubing Layout Length Chart						
Size	Bend Radius	90°	60°	45°	30°	22.5°
3/4"	5-5/16"	8-1/8"	5-1/2"	4-1/16"	2-3/4"	2"
1"	5-3/8"	8-1/2"	5-5/8"	4-1/4"	2-7/8"	2-1/8"
1-1/2"	5-7/16"	9-3/8"	6-1/4"	4-3/4"	3-1/8"	2-3/8"
1-5/8"	6-1/2"	10-1/4"	6-3/4"	5-1/8"	3-3/8"	2-5/8"
1-3/4"	6-5/8"	10-3/8"	6-7/8"	5-3/8"	3-1/2"	2-3/4"

TUBING BEND LOCATION MEASURING DATA

The following chart provides a means to measure your tubing before bending to determine the location of the center of the bend. The dimensions below are applied to a straight section of tubing. You simply place a mark on the tubing exactly where you want the center of the final bend to be, then measure back and place a second mark on the tubing with the appropriate dimension taken from the chart below (Fig. L).

The second mark is aligned with the outward face of the Clamping Loop (Fig.M). Please keep in mind that these dimensions are approximate and will vary based on the wall thickness and hardness of the particular tubing being used. Thinner, softer tubing may require less length while thicker or harder tubing may require slightly more length.

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Bend Location Measuring Chart					
Size	90°	60°	45°	30°	22.5°
3/4"	5-1/8"	4-1/4"	3-5/8"	3"	2-1/2"
1"	5-3/4"	4-3/8"	3-3/4"	3-1/8"	2-3/8"
1-1/2"	6-1/4"	4-3/4"	4"	3-1/4"	2-3/4"
1-5/8"	6-5/8"	5"	4-1/8"	3-3/8"	2-7/8"
1-3/4"	6-3/4"	5-1/8"	4-1/4"	3-1/2"	3"

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OPERATION

⚠ WARNING

BEFORE BEGINNING ANY WORK WITH THIS TOOL

It is absolutely necessary that it be securely bolted to a floor or a heavy, sturdy workbench.

This tool can not be operated without adequate support or severe personal injury or damage can occur.

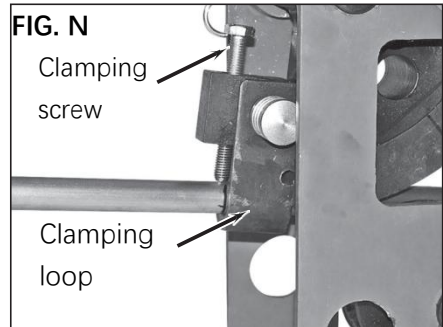
⚠ NOTICE

It is extremely important to practice bending several pieces of tubing in each size used in your project. This will allow you to become familiar with the tool and the particular limitations of the tubing being used.

It is highly recommended to have the Tubing Bender mounted to a level surface and use a magnetic angle finder to check your progress.

1. Using the Bend Location Measuring Chart on previous page, place a mark on your section of tubing at a point where you want to begin.
2. Place Tubing between the Die Block and Roller Dies and extend through the Hold Down Clamp (FIG N).
3. Align your previously made mark with the leading edge of the Hold Down Clamp.

Tighten the Clamping Screw (FIG N). Tighten sufficiently to hold clamp securely, being careful not to over-tighten and crush tubing.

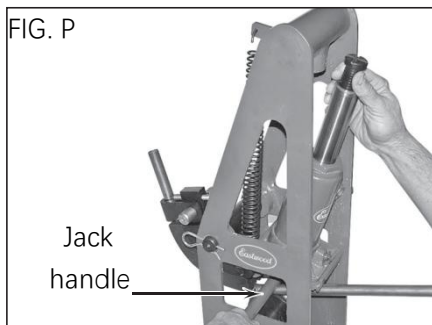
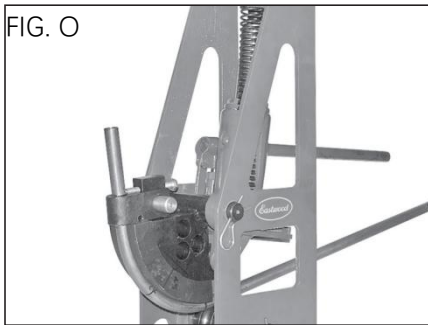


4. Make sure the Jack Rod is in the fully retracted position and the valve is closed.
NOTE: Place the notch of the Jack Handle over the "T" fitting on the Jack, (open is Counter Clockwise, closed is Clockwise).
5. Place the Jack Handle in the receptacle and VERY SLOWLY pump the Jack rotating the Die Block and bending the tubing.
6. At some point during the forming process, the jack will reach the limit of its travel (FIG O). At that point, release the jack valve slightly to reduce some pressure then place the jack handle through the square window of the frame and through the nearest hole in the Die

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Block (FIG P). Pry downward against spring tension and pull the Jack post out of the Socket. Thread the post outward to extend jack travel

then replace the jack rod in the socket, remove the jack rod from the window and close the valve.



7. Resume jacking until the desired angle is achieved. For some alloys, it may be necessary to bend several degrees beyond your desired final angle to allow for springback. A magnetic angle finder is very helpful for this process.

8. When complete, release the jack valve, loosen the Hold Down Clamp bolt and remove the pin (FIG N). To fully free the tubing, it may be necessary to utilize the procedure in step 10 and remove the jack post from the frame and pull the Jack post from the Socket.

You are now ready to create professional tubing bends enabling you to create projects in steel tubing to your individual design.

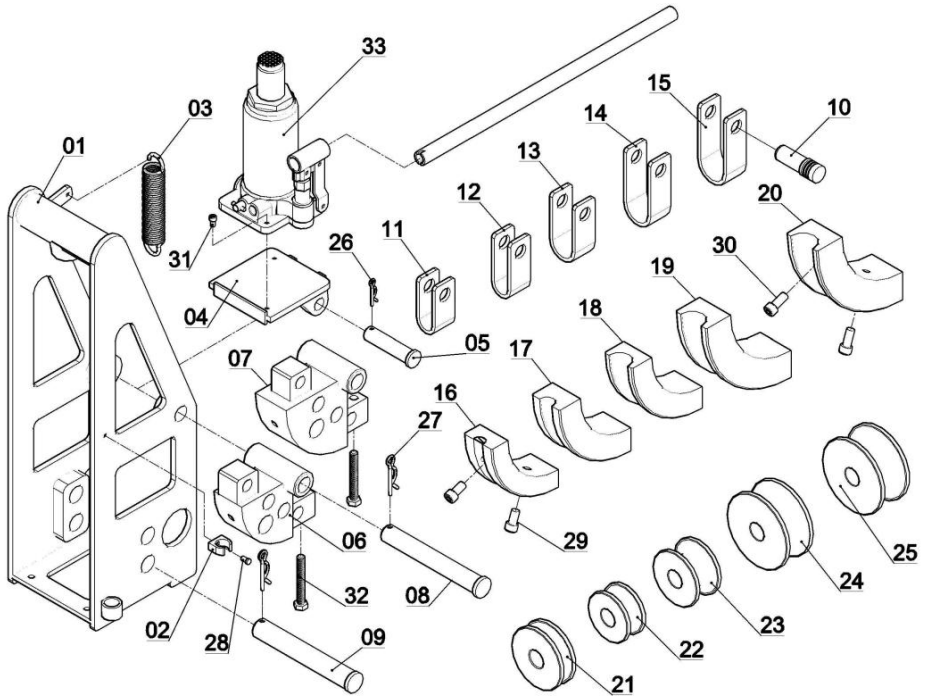
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Part List

No.	Description	QTY
1	Frame	1
2	Pipe clamp	1
3	Tension spring	1
4	Support	1
5	Pin shaft	1
6	Fan-shaped dies	1
7	Fan-shaped dies	1
8	Pin shaft	1
9	Pin shaft	1
10	Pin shaft	1
11	U-shaped card 3/4 "	1
12	U-shaped card 1 "	1
13	U-shaped card 1 1/2 "	1
14	U-shaped card 1 5/8 "	1
15	U-shaped card 1 3/4 "	1
16	Bending dies 3/4 "	1
17	Bending dies 1 "	1
18	Bending dies 1 1/2 "	1

No.	Description	QTY
19	Bending dies 1 5/8 "	1
20	Bending dies 1 3/4 "	1
21	Lower wheel 3/4 "	1
22	Lower wheel 1 "	1
23	Lower wheel 1 1/2 "	1
24	Lower wheel 1 5/8 "	1
25	Lower wheel 1 3/4 "	1
26	Alien card	1
27	Alien card	2
28	Cross pan head screw	1
29	Soket head cap screw	2
28	Cross pan head screw	1
29	Soket head cap screw	2
30	Soket head cap screw	4
31	Soket head cap screw	2
32	Hexagon bolt	2
33	Jack	1

Diagram:



SERVICE RECORD

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Date	Maintenance performed	Repair components require

NOTES

Stock No: 175005
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If you have any questions about the use of this product, please contact the nearest one to you as below:

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