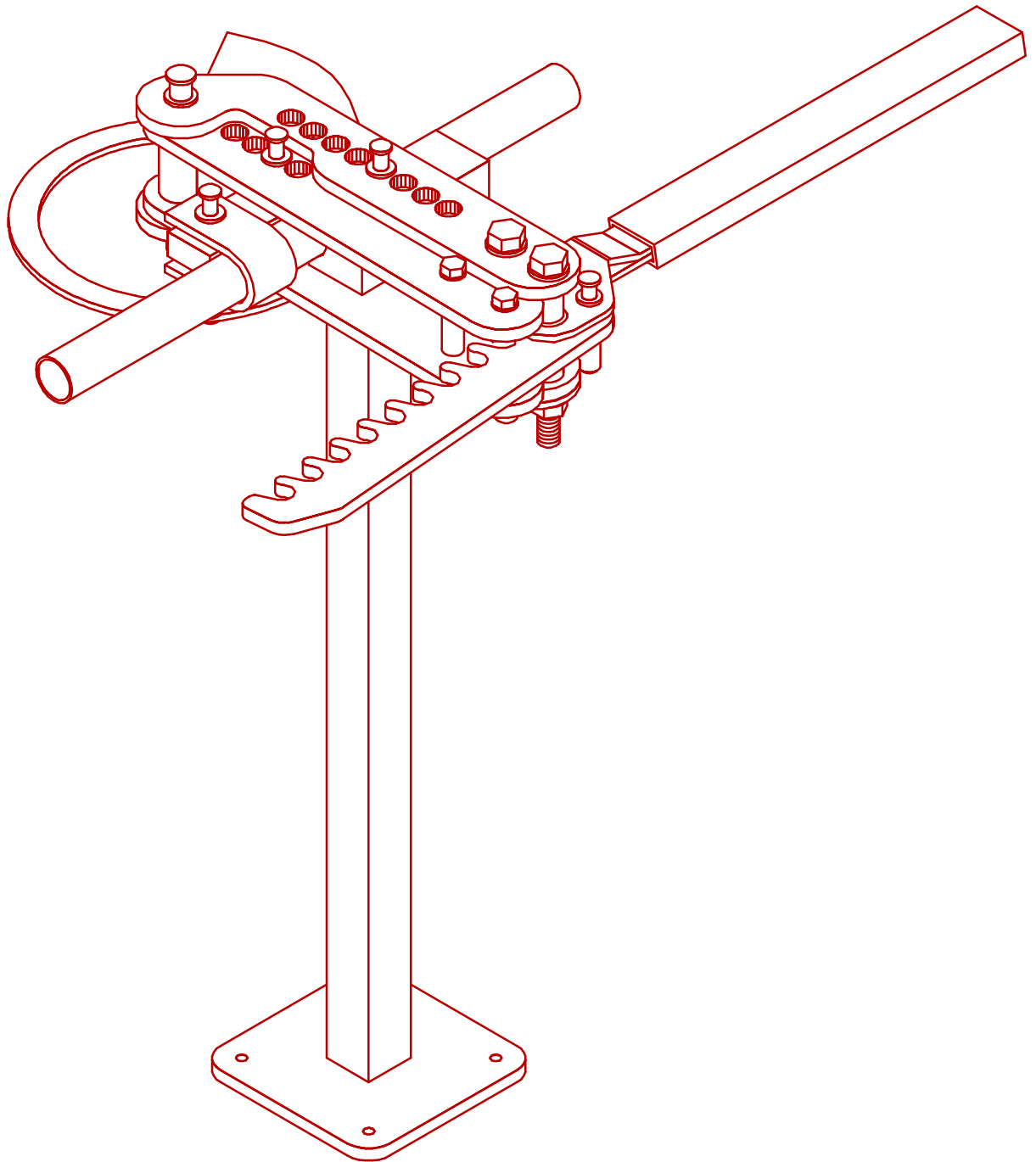


# MB-105 BENDER INSTRUCTIONS

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**PRO TOOLS**

DIVISION OF

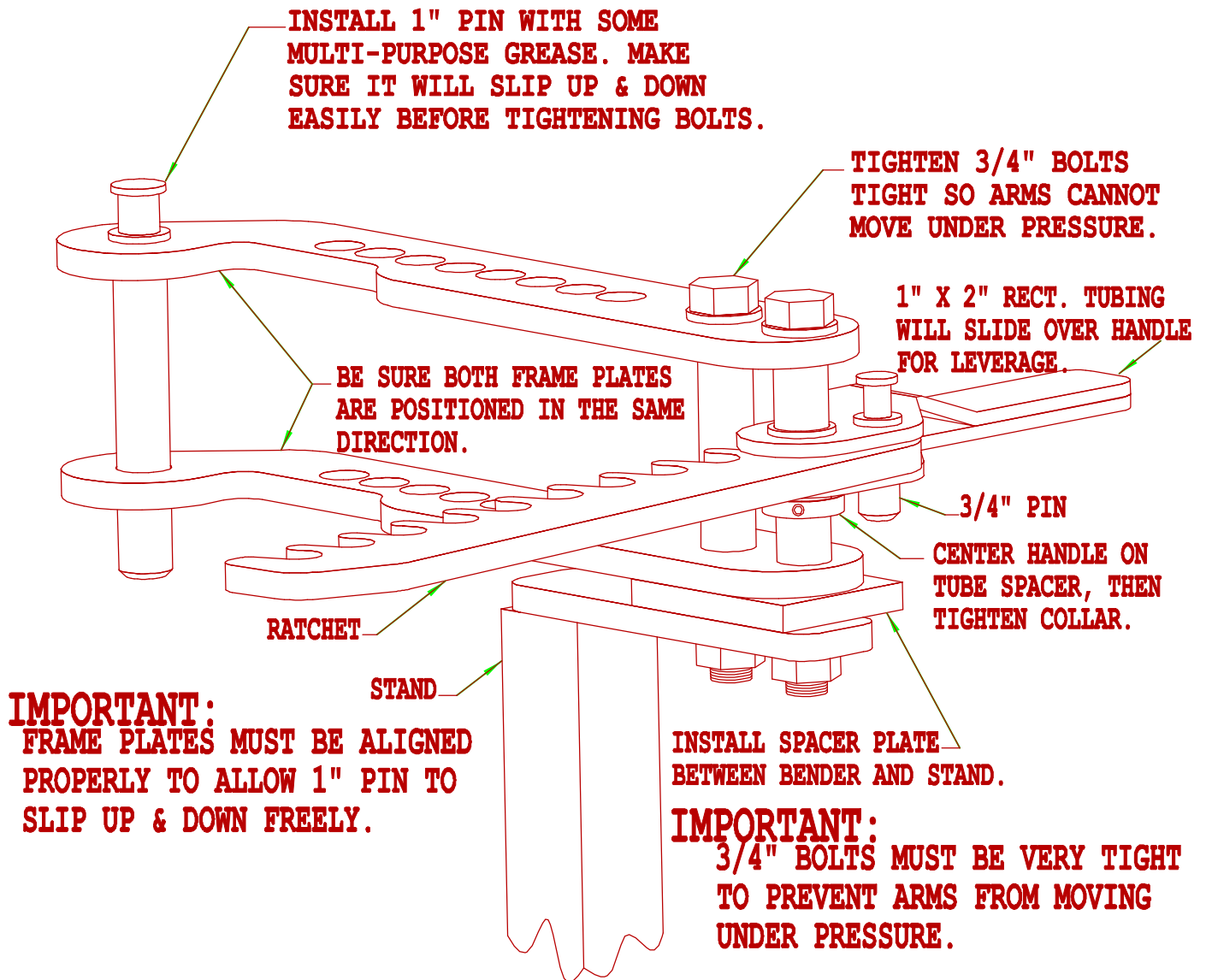
**PRO MANUFACTURING**

7616 INDUSTRIAL LANE

TAMPA, FL. 33637

# ASSEMBLY INSTRUCTIONS

IN THE FOLLOWING INSTRUCTIONS WE WILL TRY TO EXPLAIN THE ASSEMBLY OF THE BENDER. PLEASE READ EVERYTHING, BECAUSE SOME ITEMS ARE VERY IMPORTANT AND WILL SAVE YOU TIME LATER ON. THE BENDER IS DESIGNED TO BOLT TO A BENCH OR STAND. WE RECOMMEND INSTALLING IT ON A STAND. IT MAKES IT A GREAT DEAL EASIER TO WORK AROUND WITHOUT HAVING ANY OBSTACLES.

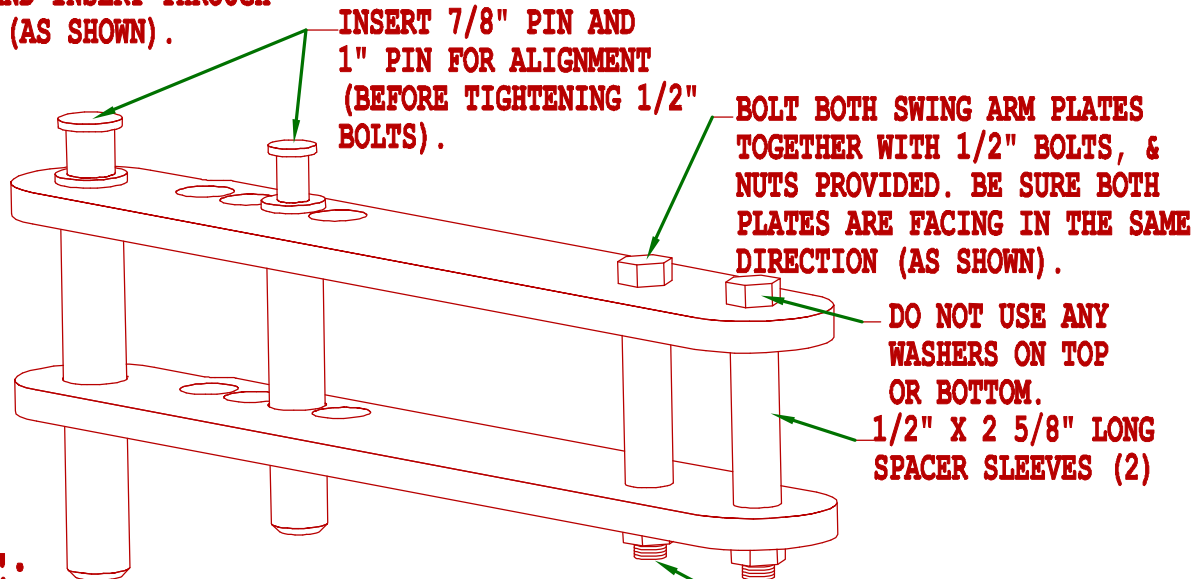


## FRONT VIEW OF FRAME ASSEMBLY

THIS IS THE FIRST STEP OF ASSEMBLY. WHEN COMPLETED MAKE SURE THIS PORTION OF YOUR BENDER IS ASSEMBLED AS SHOWN IN THE ABOVE ILLUSTRATION.

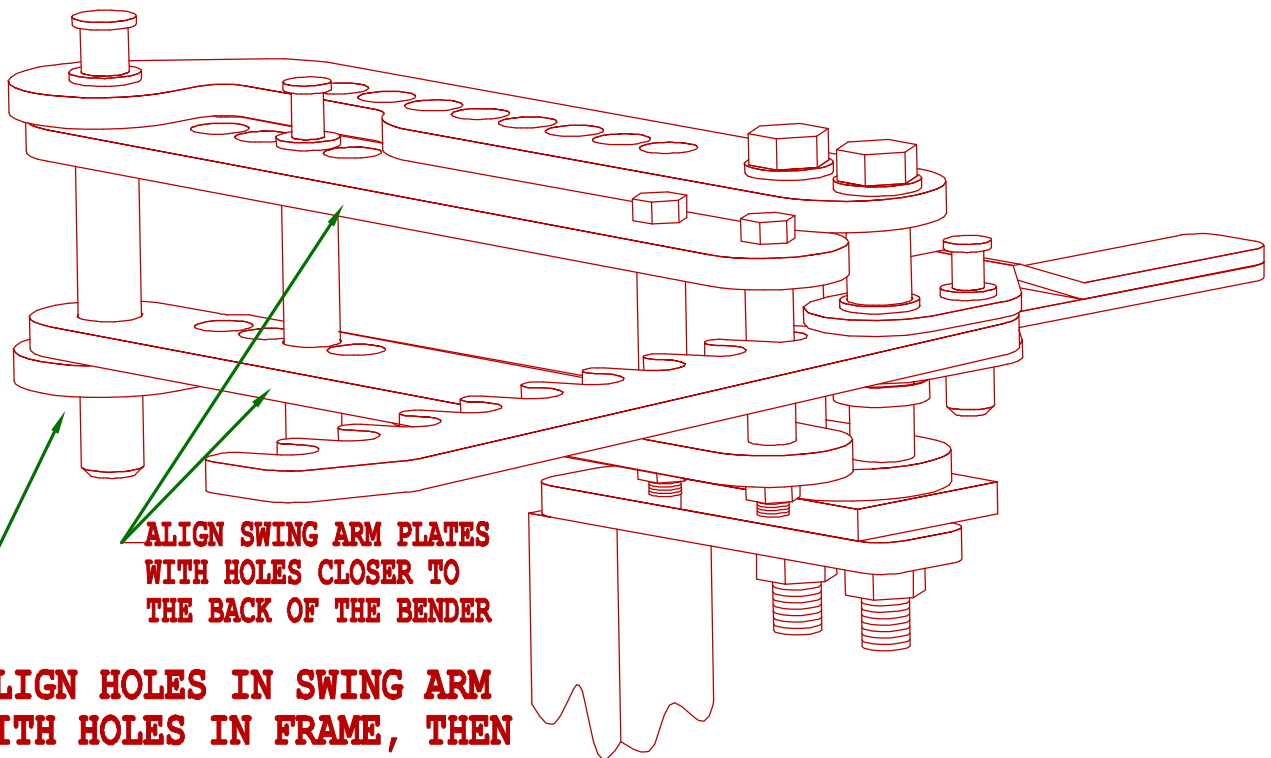
# ASSEMBLY INSTRUCTIONS

REMOVE 1" PIN FROM FRAME ASSEMBLY AND INSERT THROUGH END HOLES (AS SHOWN).



**NOTE:**  
PLATES MUST BE ALIGNED PROPERLY SO THAT PINS CAN SLIDE OUT FREELY.

1/2" BOLTS MUST BE TIGHT TO PREVENT PLATES FROM MOVING.



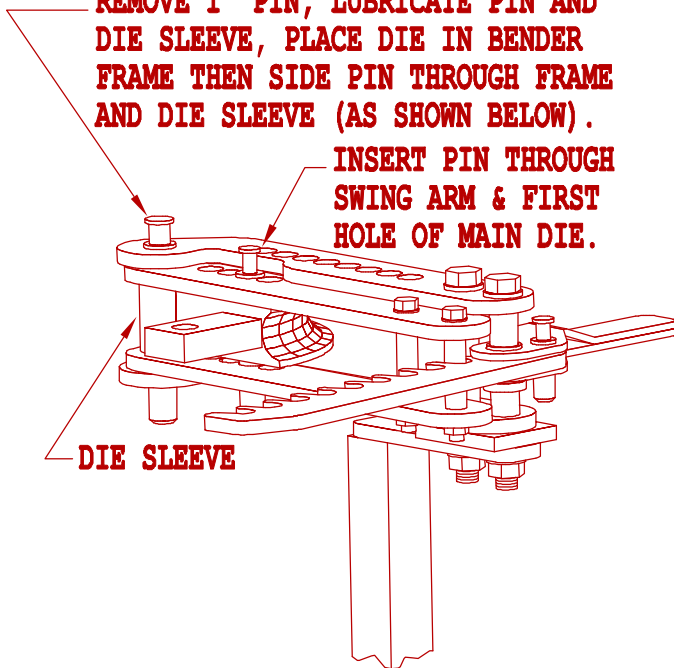
ALIGN HOLES IN SWING ARM WITH HOLES IN FRAME, THEN SLIDE PIN THROUGH HOLES. BE SURE TO POSITION SWING ARM WITH THE DRIVE PIN HOLES TOWARD THE INSIDE (AS SHOWN).

# ASSEMBLY INSTRUCTIONS

## A. MAIN DIE INSTALLATION

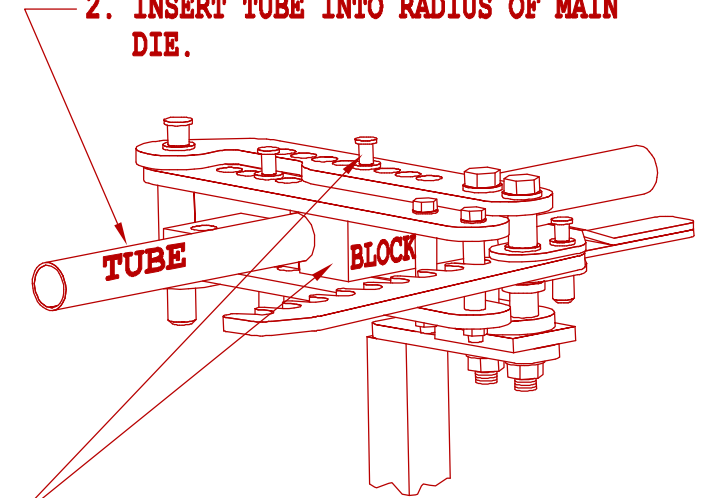
REMOVE 1" PIN, LUBRICATE PIN AND DIE SLEEVE, PLACE DIE IN BENDER FRAME THEN SIDE PIN THROUGH FRAME AND DIE SLEEVE (AS SHOWN BELOW).

INSERT PIN THROUGH SWING ARM & FIRST HOLE OF MAIN DIE.



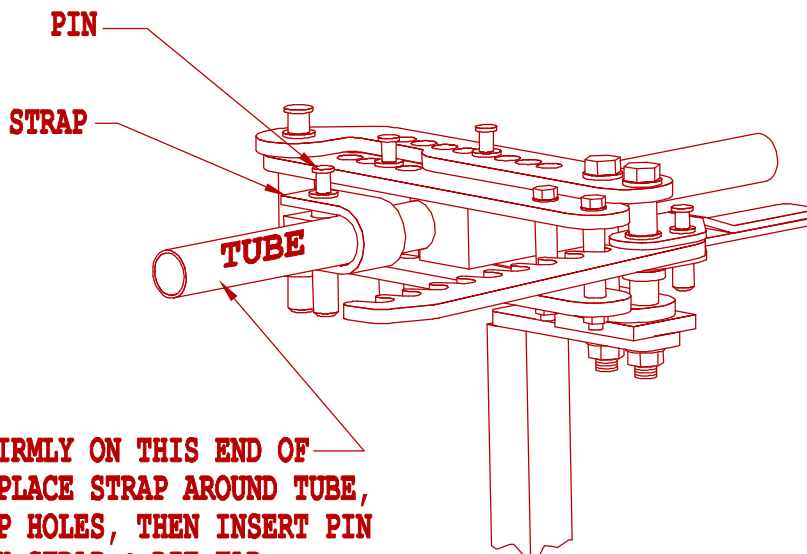
## B. TUBE & BACKING BLOCK INSTALLATION

1. BENDER SWING ARMS MUST BE CLOSED AGAINST BENDER FRAME BEFORE INSTALLING TUBE & BACKING BLOCK.
2. INSERT TUBE INTO RADIUS OF MAIN DIE.



3. PUSH BACKING BLOCK AS TIGHTLY AS POSSIBLE AGAINST TUBE, THEN INSERT PIN THROUGH BENDER FRAME & BLOCK.

## C. STRAP & PIN INSTALLATION

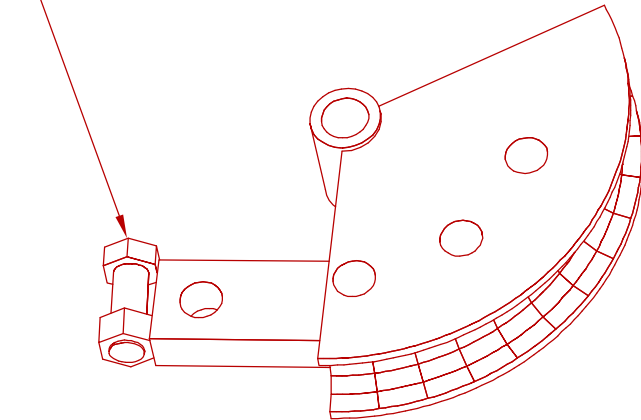


PUSH FIRMLY ON THIS END OF TUBE, PLACE STRAP AROUND TUBE, LINE UP HOLES, THEN INSERT PIN THROUGH STRAP & DIE TAB.

# IMPORTANT!

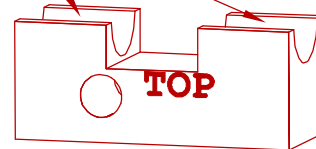
CHECK THESE ITEMS BEFORE STARTING BENDING.

TIGHTEN LOCKDOWN BOLT SO TUBE WILL NOT SLIP. BE CAREFUL NOT TO OVER-TIGHTEN & DAMAGE TUBE.



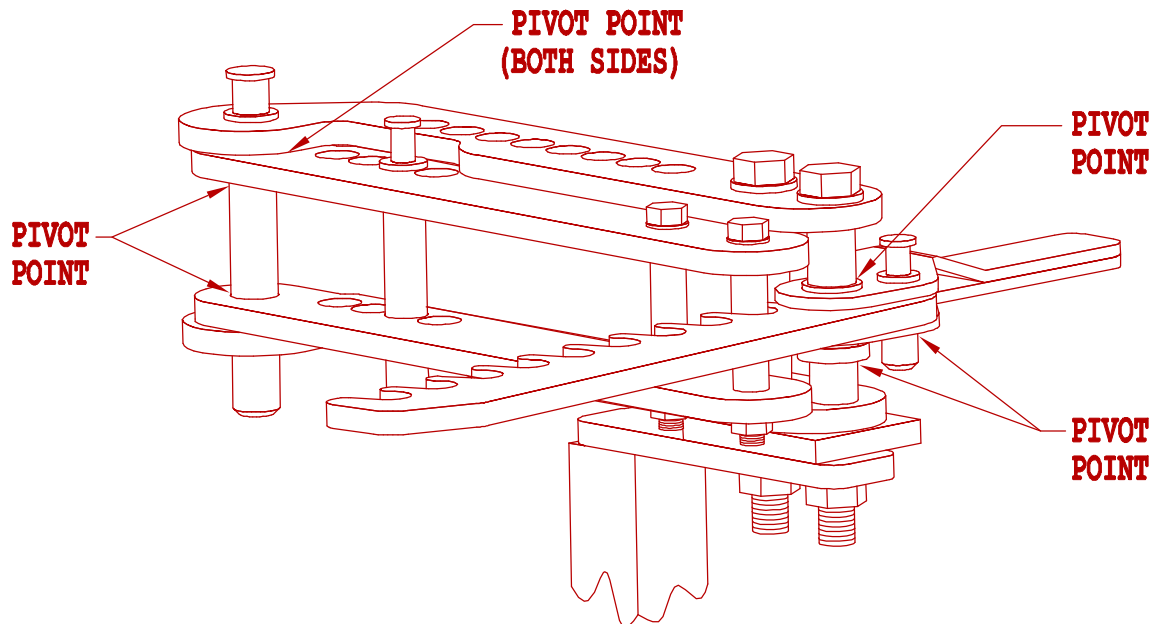
RADIUS OF MAIN DIE MUST BE CLEAN. ABSOLUTELY NO GREASE!

FOR A FRICTION-FREE BEND, ALWAYS LUBRICATE THE BACKING BLOCK. ALL PURPOSE WHEEL BEARING GREASE WORKS VERY WELL.



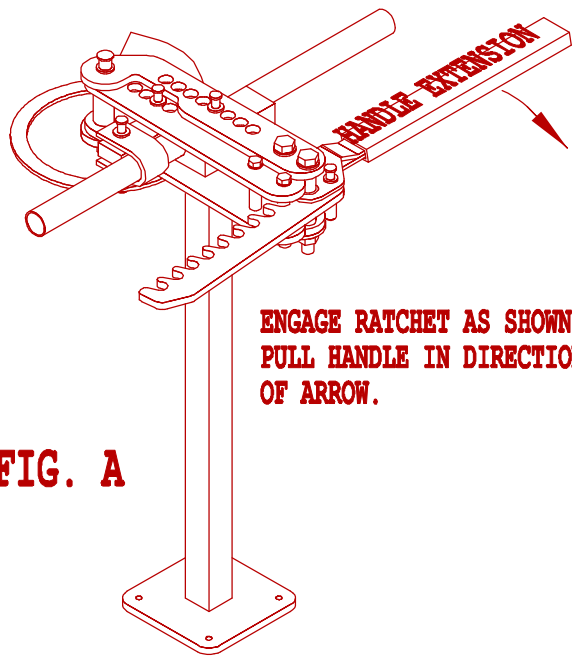
NOTE:  
YOUR BACKING BLOCK HAS "TOP" STAMPED ON IT.  
THIS MUST ALWAYS FACE UP.

(BACKING BLOCKS WILL VARY IN SHAPE & DESIGN.  
THE BLOCK SHOWN ABOVE IS JUST ONE EXAMPLE.)



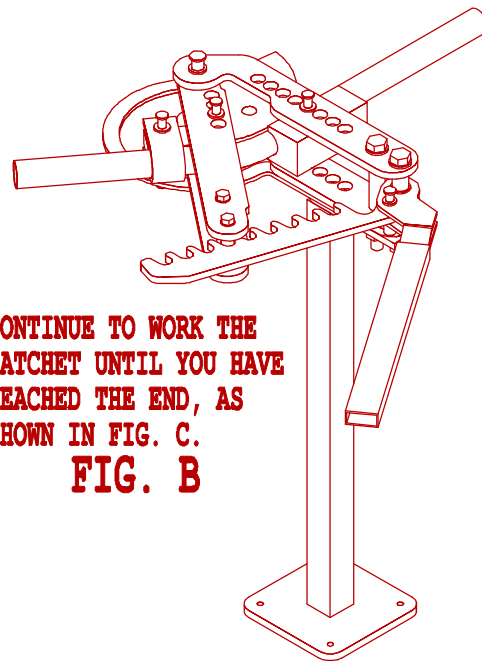
LUBRICATE ALL PIVOT POINTS TO PREVENT EXCESS WEAR  
AND TO INCREASE EASE OF BENDING.

# BENDING INSTRUCTIONS



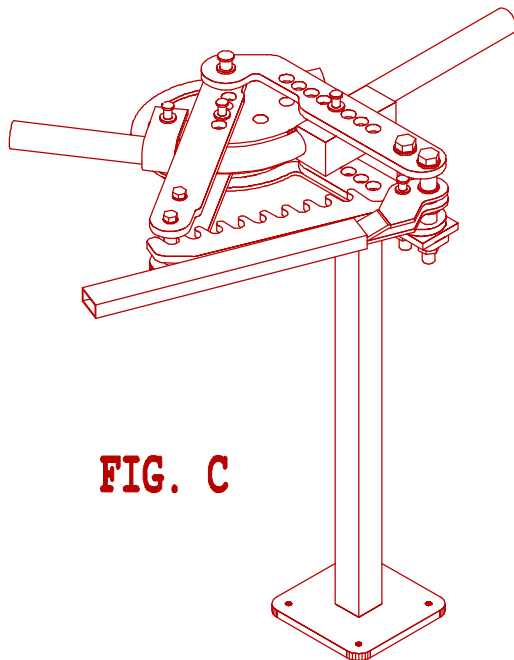
**FIG. A**

ENGAGE RATCHET AS SHOWN. PULL HANDLE IN DIRECTION OF ARROW.

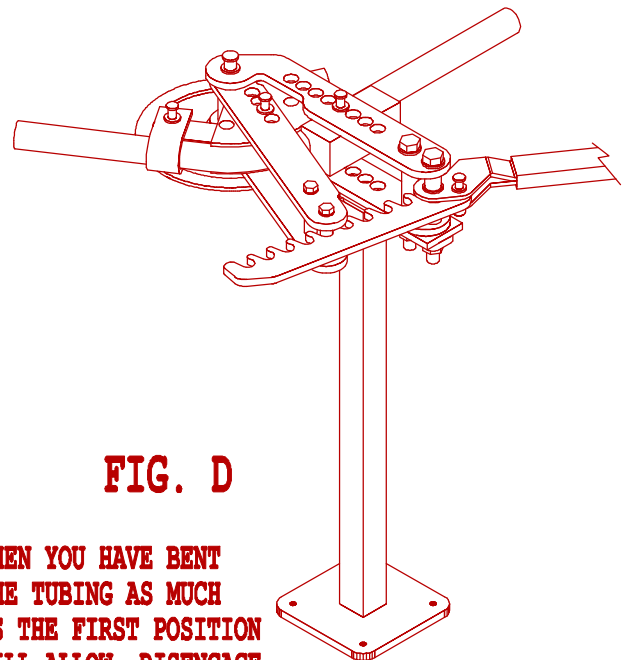


CONTINUE TO WORK THE RATCHET UNTIL YOU HAVE REACHED THE END, AS SHOWN IN FIG. C.

**FIG. B**



**FIG. C**



**FIG. D**

WHEN YOU HAVE BENT THE TUBING AS MUCH AS THE FIRST POSITION WILL ALLOW, DISENGAGE THE RATCHET & REMOVE THE 7/8" DRIVE PIN. ROTATE THE SWING ARM COUNTER-CLOCKWISE UNTIL THE DRIVE PIN CAN BE REINSTALLED THROUGH ANOTHER HOLE IN THE BENDING DIE. BE CAREFUL NOT TO MOVE THE TUBE. NOW REPEAT THE ABOVE BENDING SEQUENCE UNTIL THE DESIRED DEGREE OF BEND IS OBTAINED.

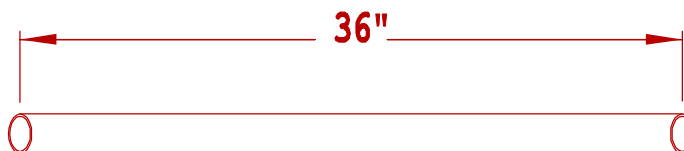


# BENDING INSTRUCTIONS

IN THE NEXT FEW PAGES, WE ARE GOING TO TRY TO EXPLAIN A FEW THINGS ABOUT BENDERS & GIVE SOME EXAMPLES & EXPLANATIONS ON MAKING BENDS.

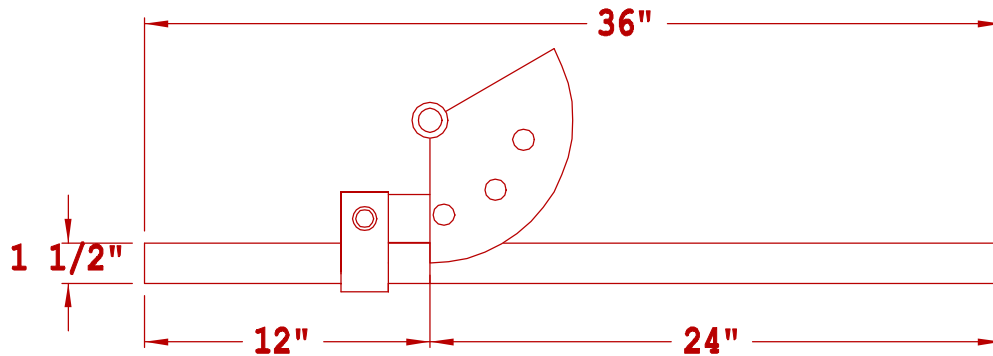
WE ARE GOING TO TAKE YOU THROUGH A *STEP BY STEP* PROCEDURE SHOWING YOU HOW TO DETERMINE THE STARTING POINT OF YOUR BEND, HOW TO CALCULATE THE LENGTH OF TUBING YOU NEED TO START WITH, AND AS MANY WAYS AS POSSIBLE FOR YOU TO BE ABLE TO PRODUCE *PROFESSIONAL, ACCURATE BENDS*.

THE GENERAL RULE, AS FAR AS THE QUALITY OF THE BEND IS AS FOLLOWS: *THE THICKER THE WALL SIZE AND THE SMALLER THE DIAMETER OF THE TUBING BECOMES, THE BETTER THE BEND*. THIN WALL TUBING WILL FLATTEN SOMEWHAT ON ITS OUTER DIAMETER. THIS IS COMPLETELY NORMAL FOR ANY BENDER OTHER THAN A *TRUE MANDREL* BENDER. A MANDREL BENDER USES A STEEL BALL OR SIMILAR SHAPED DEVICE WITH AN OUTSIDE DIAMETER SLIGHTLY SMALLER THAN THE INSIDE DIAMETER OF THE TUBING BEING BENT. THIS HAS THE EFFECT OF THINNING THE WALL THICKNESS ON THE OUTSIDE OF THE TUBING, HOWEVER THE ROUNDNESS OF THE TUBING IS PRESERVED ALMOST PERFECTLY. EXHAUST HEADERS ARE BENT WITH *MANDREL* BENDERS. IF A COMPANY TELLS YOU THIER BENDER IS A MANDREL BENDER AND IT DOES NOT USE INSIDE MANDRELS, *BEWARE!!!* TRUE MANDREL BENDERS ARE EXTREMELY EXPENSIVE.



**STEP 1** THE TUBING FOR OUR TEST IS 1 1/2" X 36" LONG. ONLY ONE PIECE IS NECESSARY TO GIVE YOU ALL THE INFORMATION YOU WILL NEED TO MAKE ACCURATE BENDS. IT IS A GOOD IDEA TO KEEP A NOTEBOOK TO LOG YOUR INFORMATION ON THE TEST BEND. IT WILL BE NECESSARY TO RUN THE SAME TEST FOR EACH SIZE TUBING YOU PLAN TO BEND. *NOTE: EACH SIZE OF TUBING BENDS AND STRETCHES AND USES A DIFFERENT AMOUNT OF TUBING IN THE BEND, SO IT WILL BE IMPORTANT TO LOG THE RESULTS FROM EACH TEST.* ALSO, ALWAYS KEEP ALL PINS AND ANY "METAL TO METAL" PARTS ON THE BENDER WELL LUBRICATED. THIS WILL GREATLY REDUCE THE AMOUNT OF FORCE NEEDED TO OPERATE THE RATCHET, AND WILL ALSO PREVENT UNNECESSARY WEAR.

# BENDING INSTRUCTIONS

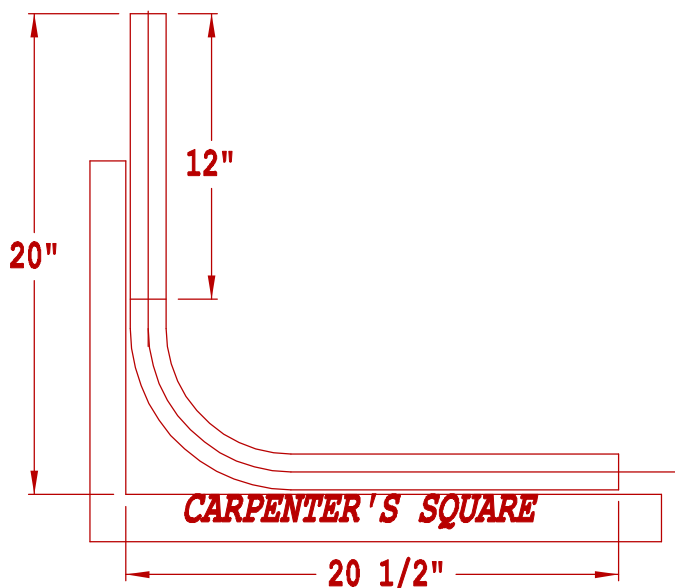


## STEP 2

TAKE THE 36" LONG PIECE OF TUBING AND MEASURE EXACTLY 12" FROM LEFT TO RIGHT, THEN MARK THE TUBE. PLACE THE TUBE IN THE BENDER AND POSITION THE EDGE OF THE DIE EXACTLY IN THE CENTER OF THE MARK, AS SHOWN IN THE EXAMPLE, THEN MAKE A 90 DEGREE BEND. USE A CARPENTER'S SQUARE TO MAKE SURE YOU HAVE A PERFECT 90 DEGREE BEND. IF YOU OVERBEND, SIMPLY PLACE THE TUBE IN A VISE AND PULL IT BACK TO 90 DEGREES. IF IT IS NOT BENT ENOUGH, PUT THE TUBE BACK IN THE BENDER AND FINISH THE BEND. **IMPORTANT:** WITH YOUR TUBE BENT TO 90 DEGREES, BUT STILL IN THE BENDER, CHECK TO SEE IF THE EDGE OF THE DIE IS STILL LINED UP WITH YOUR MARK. IF IT IS, YOU'RE OK, IF NOT IT WILL BE NECESSARY TO CUT ANOTHER PIECE OF TUBING AND REPEAT THE TEST. **THE MARK MUST BE LINED UP WITH THE DIE IN ORDER FOR YOU TO GET ACCURATE INFORMATION ON YOUR TEST.**

## STEP 3

IN STEP 3 WE HAVE FINISHED THE BEND AND TAKEN A MEASUREMENT BY PLACING A CARPENTER'S SQUARE AGAINST THE BACK OF THE TUBING THEN RUNNING OUR RULER FROM THE SQUARE TO EACH END OF THE TUBING. IN THIS EXAMPLE WE ARE USING 1 1/2" TUBING AND A 6" RADIUS DIE. WE SEE THE SIDE WITH OUR 12" MARK IS NOW 20" LONG, AND THE 24" SIDE IS 20 1/2" LONG. WE HAVE GAINED 8" ON THE 12" SIDE AND LOST 3 1/2" ON THE 24" SIDE. IN THE NEXT FEW STEPS WE WILL SHOW YOU HOW TO APPLY THIS KNOWLEDGE TO YOUR PROJECT.

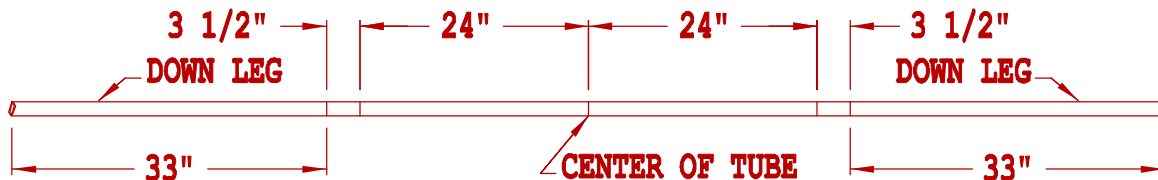




# BENDING INSTRUCTIONS

## STEP 4

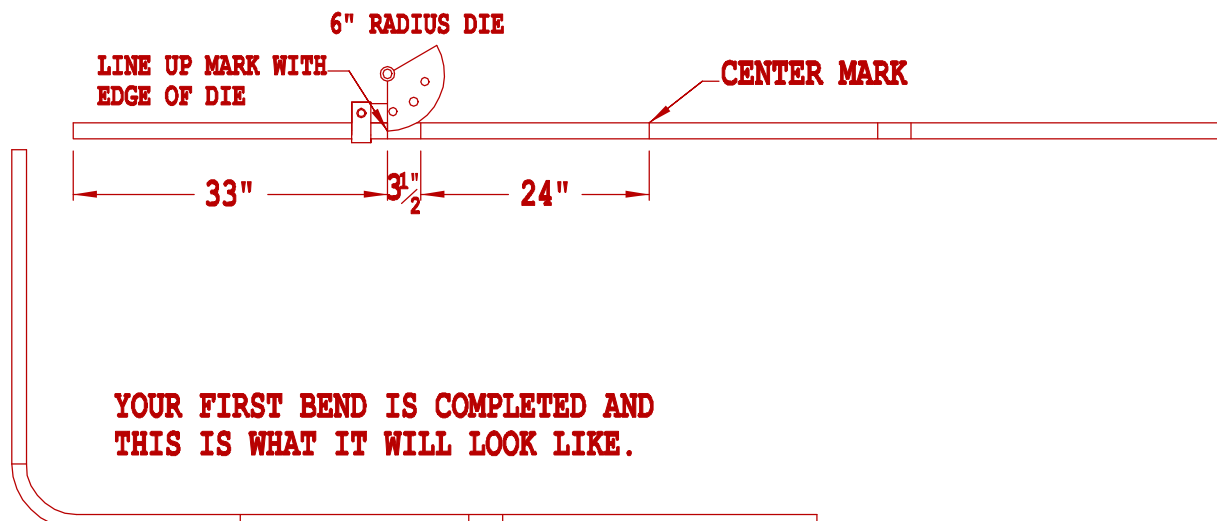
WE ARE NOW READY TO START A BENDING PROJECT. IN OUR EXAMPLE WE WILL FABRICATE THE MAIN HOOP FOR THE ROLLBAR ON A RACE CAR. WE USE THIS PROJECT BECAUSE IT IS A JOB REQUIRING MULTIPLE BENDS AND CLOSE TOLERANCES. WE ARE USING 1 1/2" TUBING, AND WE WANT A WIDTH OF 48" AND A HEIGHT OF 40" WHEN COMPLETED.



- A. DRAW A PICTURE OF A PIECE OF TUBING.
- B. WE KNOW WE WANT A WIDTH OF 48".
- C. MARK TUBE IN CENTER.
- D. 1/2 OF 48" IS 24". MEASURE FROM THE CENTER OF THE TUBE TO THE RIGHT 24" AND MARK THE TUBE. MEASURE FROM THE CENTER OF THE TUBE TO THE LEFT 24" AND MARK THE TUBE.
- E. ADD ON 3 1/2" ON EACH SIDE, BECAUSE WE KNOW THAT IT WILL SHORTEN UP THIS AMOUNT.
- F. WE WANT A DOWN LEG OF 40" AND FROM OUR TEST WE KNOW THE BEND WILL ADD 8" TO THE LEG. IN THIS PROJECT WE WILL NEED 32" OF TUBING ON EACH END, BUT HAVE ADDED AN EXTRA INCH FOR A SAFETY FACTOR. IT IS BETTER TO CUT A SMALL AMOUNT OFF THAN TO HAVE YOUR TUBE COME UP SHORT.

## STEP 5

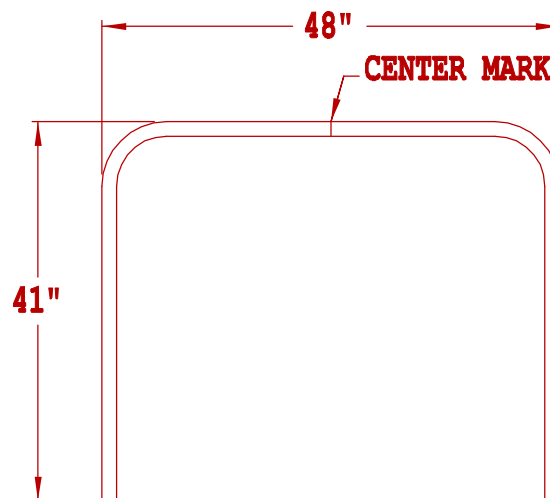
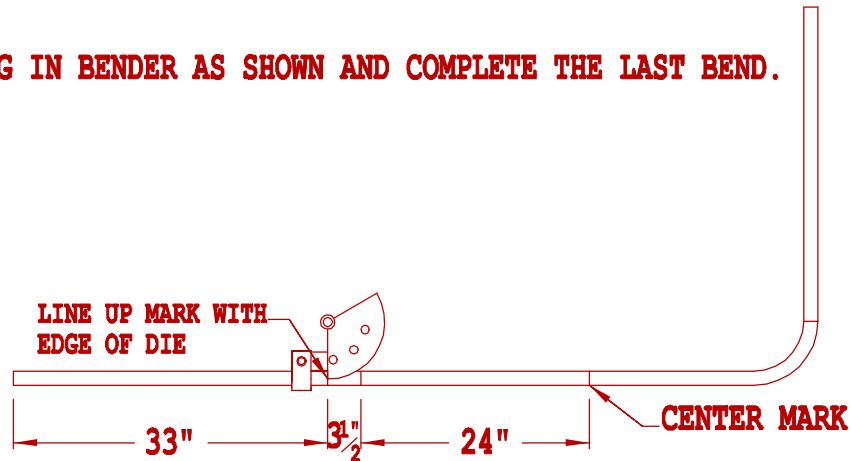
LINE UP TUBING IN BENDER AS SHOWN AND MAKE THE FIRST BEND.



# BENDING INSTRUCTIONS

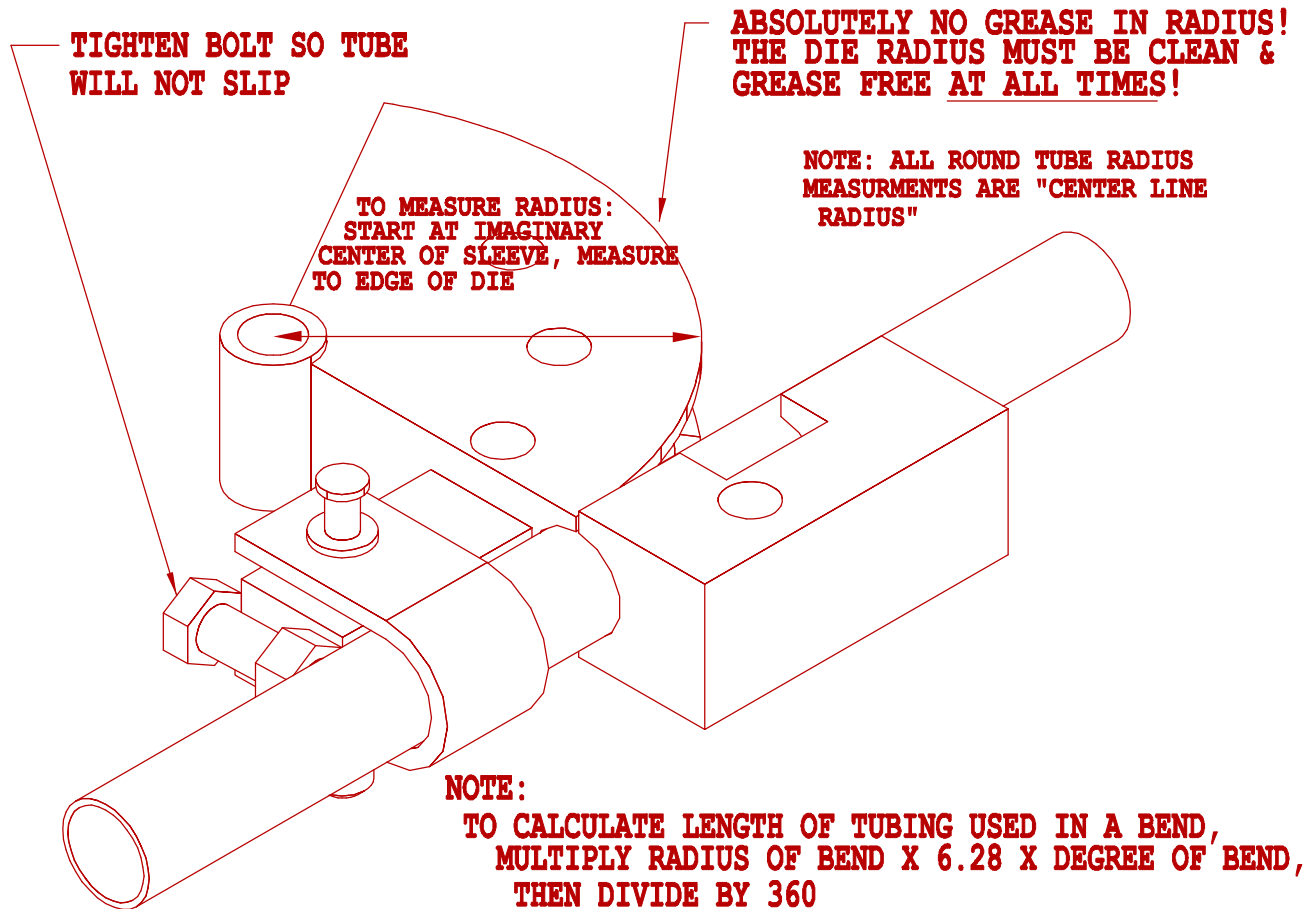
## STEP 6

INSTALL TUBING IN BENDER AS SHOWN AND COMPLETE THE LAST BEND.



AT THIS POINT YOUR ROLLBAR IS COMPLETE, BUT WE WOULD LIKE TO OFFER ONE REMINDER. ALWAYS WORK ALL BENDS OFF THE CENTER MEASUREMENT BECAUSE DIFFERENT METALS STRETCH DIFFERENTLY & IF YOU MAKE A MISTAKE ON THE FIRST BEND YOU CAN MAKE AN ADJUSTMENT ON THE SECOND BEND TO CORRECT THE PROBLEM.

# HELPFUL INFORMATION



## EXAMPLE:

6 INCH RADIUS, 90° BEND WOULD BE:  
 $6 \times 6.28 \times 90 \div 360 = 9.42$

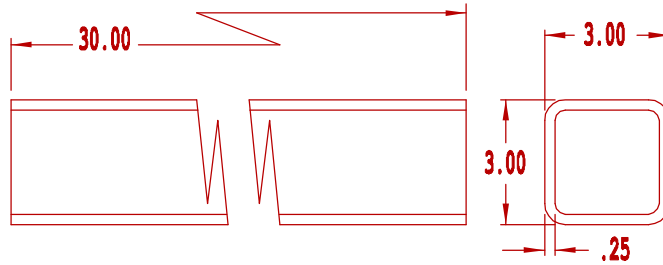
**IMPORTANT!** LUBRICATING ALL PINS AND "METAL TO METAL" SURFACES WITH ALL PURPOSE BEARING GREASE WILL GREATLY REDUCE THE EFFORT NECESSARY TO OPERATE THE BENDER AND AT THE SAME TIME WILL GREATLY INCREASE THE OVER-ALL LIFE OF THE BENDER. (**REMEMBER**), GREASE IS OKAY EVERYWHERE EXCEPT IN THE RADIUS OF THE MAIN MAIN DIE. **THE MAIN DIE MUST REMAIN DRY AT ALL TIMES OR THE TUBING COULD SLIP AND KINK.**

## PLEASE NOTE:

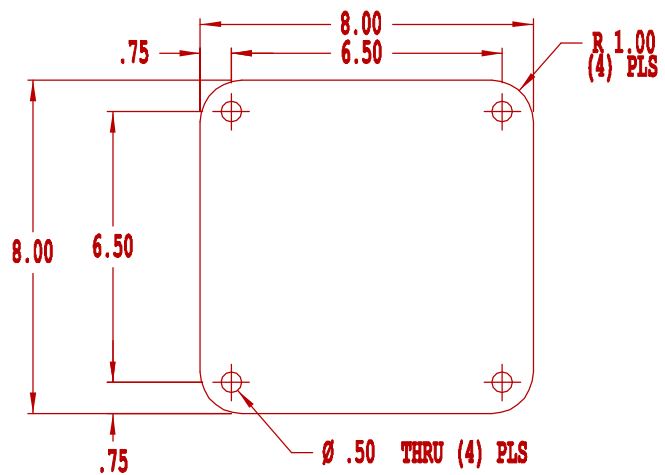
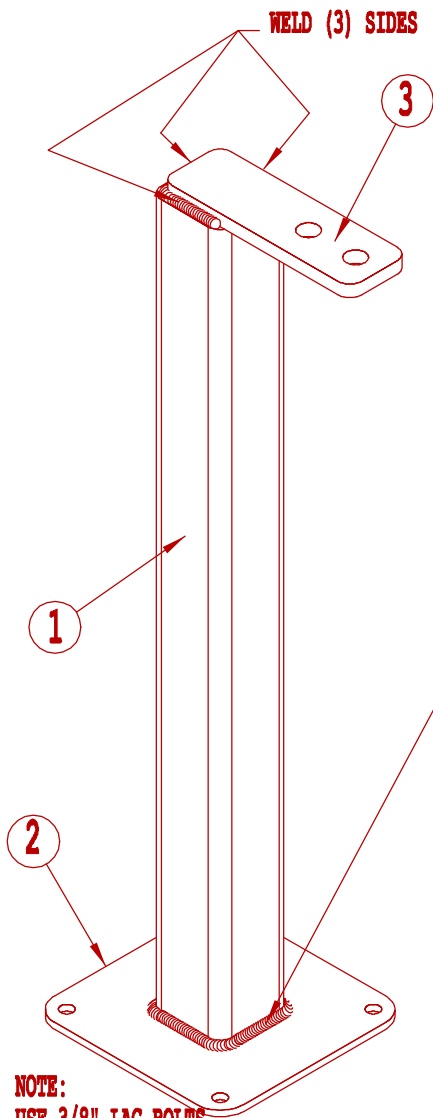
WE HAVE VERY SIMPLE COMPUTER PROGRAMS AVAILABLE THAT WILL LAY YOUR JOB OUT FOR YOU, IF YOUR BENDING REQUIREMENTS BECOME TOO COMPLEX.

**WE APPRECIATE YOU PURCHASING A PRO BENDER AND WE BELIEVE IF YOU FOLLOW THE DIRECTIONS, WITH A LITTLE PRACTICE, YOU'LL BE PRODUCING PROFESSIONAL, ACCURATE BENDS EASILY.**

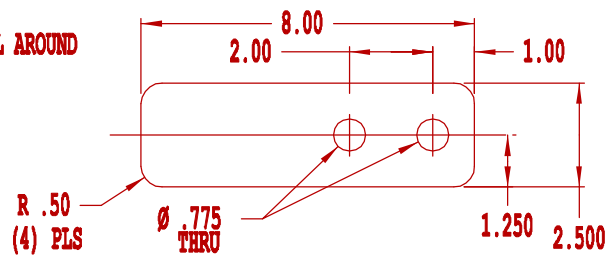
# STAND PLANS



① SUPPORT TUBE -- 3" x 3" x 1/4" WALL STEEL TUBE

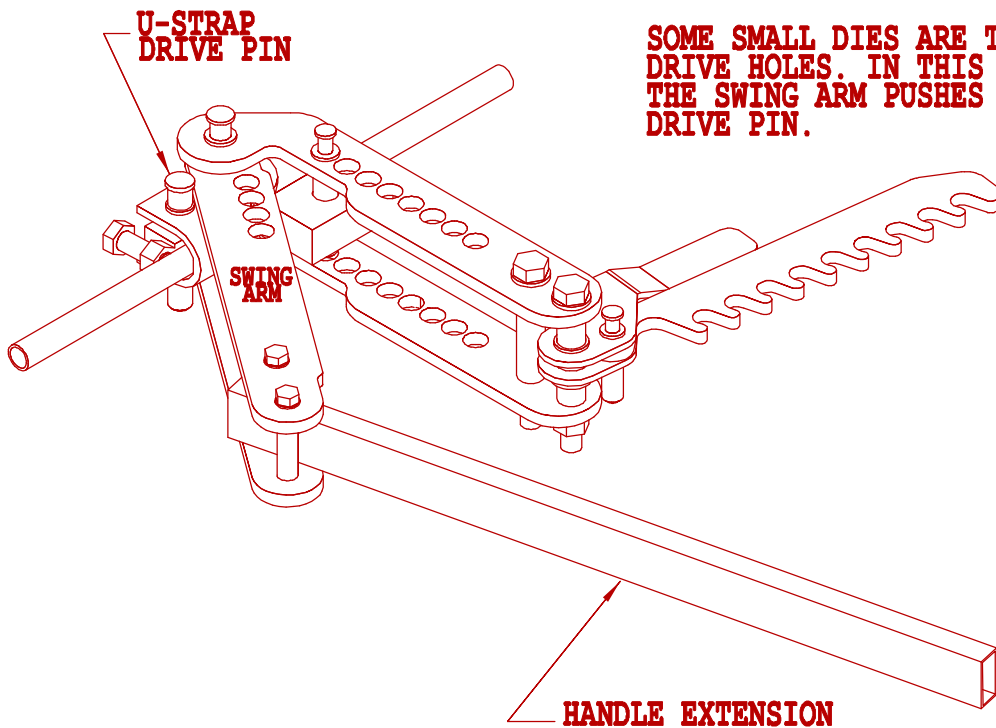


② BASE PLATE -- 1/4" HRMS PLATE



③ TOP PLATE -- 1/2" x 2 1/2" STEEL FLAT BAR

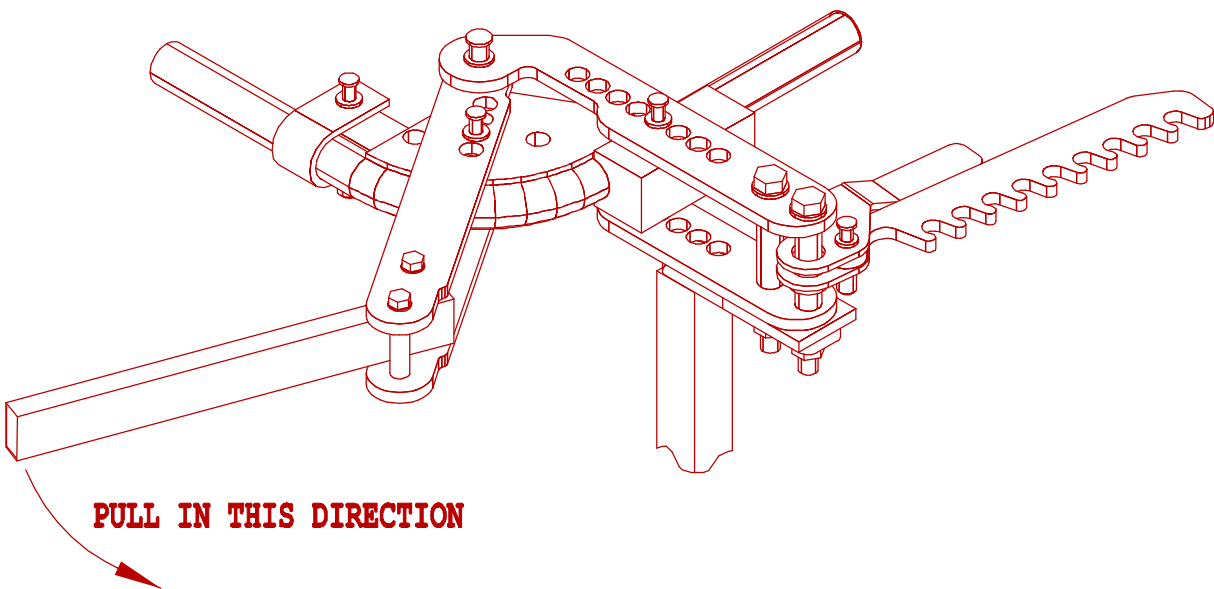
NOTE:  
USE 3/8" LAG BOLTS  
TO SECURE TO  
CONCRETE FLOOR



SOME SMALL DIES ARE TOO SMALL TO DRILL DRIVE HOLES. IN THIS CASE THE OUTSIDE OF THE SWING ARM PUSHES AGAINST THE U-STRAP DRIVE PIN.

WITH SMALLER TUBE SIZES, THE RATCHET IS NOT NEEDED. FOR A QUICKER BEND, SIMPLY INSERT THE HANDLE EXTENSION BETWEEN THE TWO BOLTS ON THE SWING ARM (AS SHOWN ABOVE) AND PULL THE HANDLE AND SWING ARM AROUND TO CREATE THE DESIRED BEND.

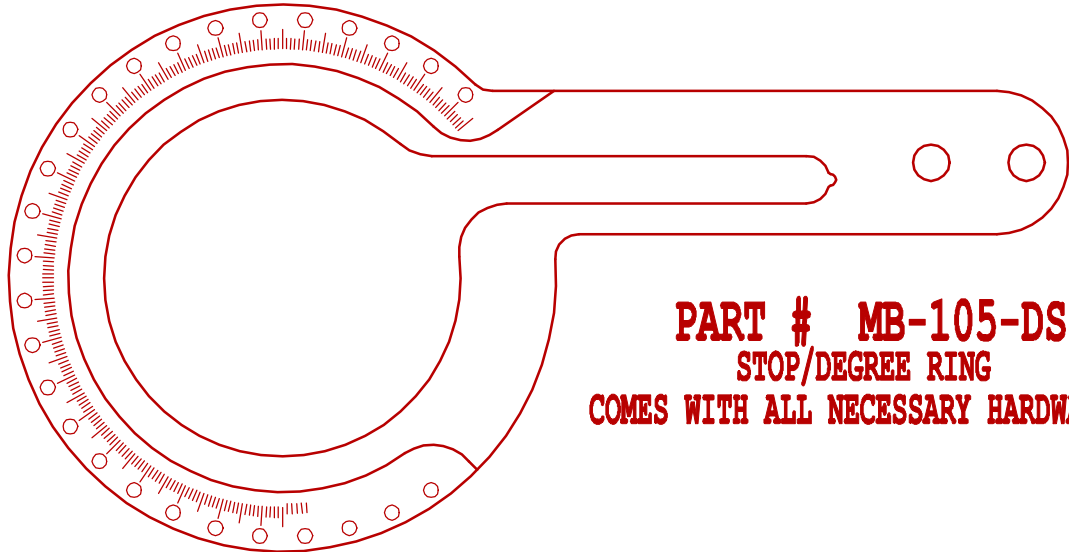
## TUBE RELEASE PROCEDURE



SOMETIMES AFTER COMPLETING THE BEND ON LARGE SIZE TUBING, THE DIE WILL NOT RELEASE THE TUBE. IF THIS HAPPENS, REVERSE THE HANDLE EXTENSION (AS SHOWN), THEN GIVE A HARD YANK IN THE OPPOSITE DIRECTION OF THE BEND.

# ACCESSORY INFORMATION

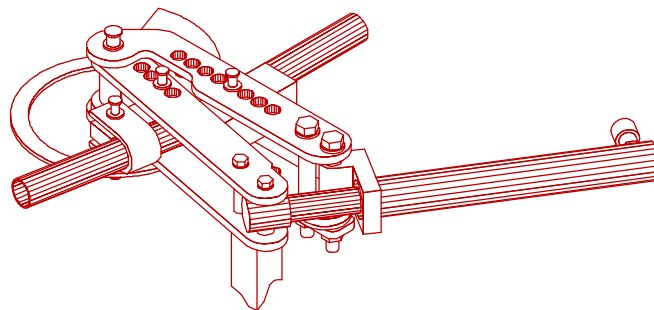
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**PART # MB-105-DS**  
**STOP/DEGREE RING**  
**COMES WITH ALL NECESSARY HARDWARE.**

**AN EXCELLENT ADDITION TO YOUR BENDER.**

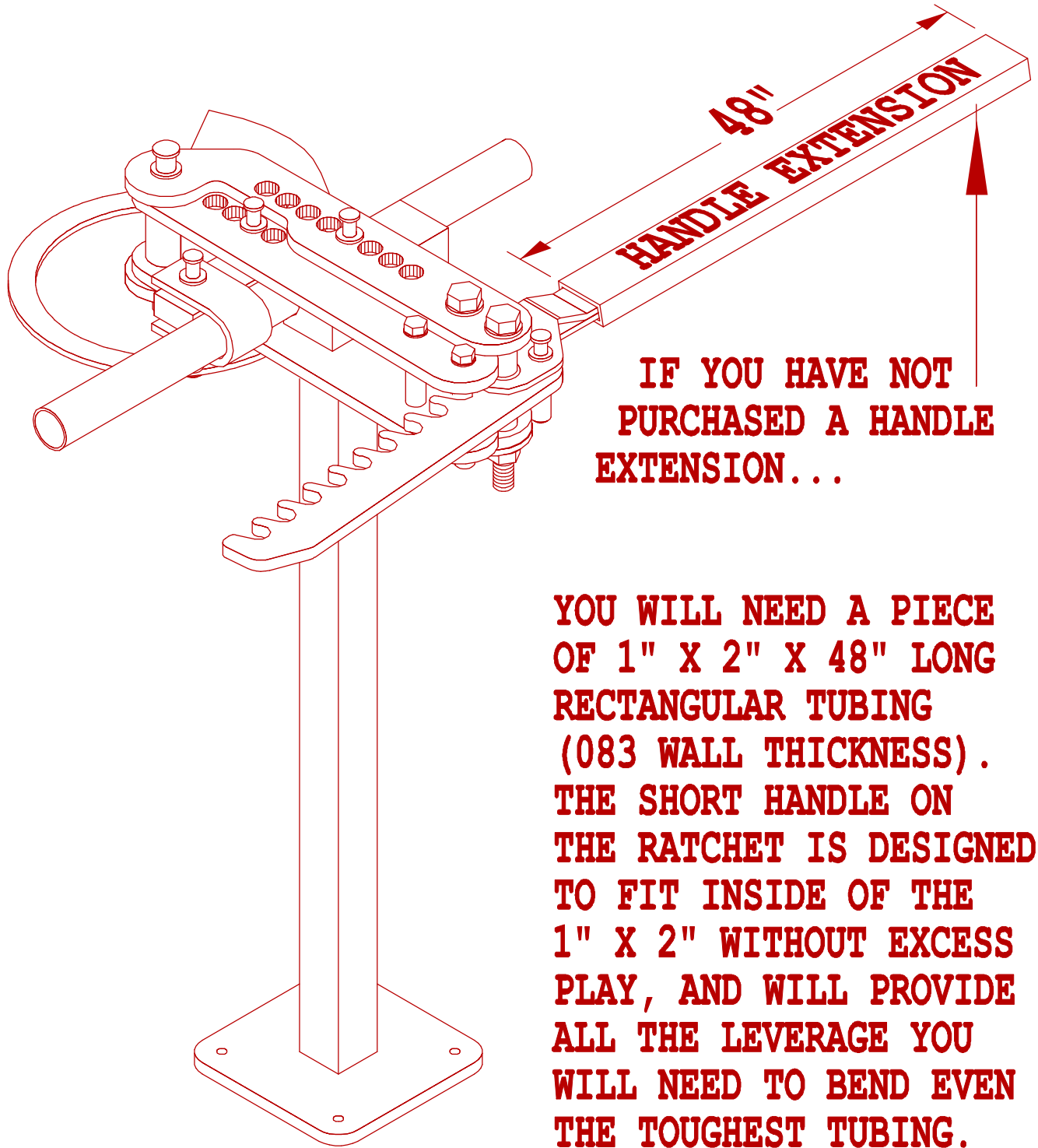
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**MB-105 WITH**  
**HYDRAULIC CONVERSION KIT**  
**THIS ILLUSTRATION SHOWS THE BENDER WITH**  
**THE HYDRAULIC CONVERSION KIT INSTALLED**  
**REFER TO CATALOG**



# HANDLE EXTENSION INFORMATION



IF YOU HAVE NOT  
PURCHASED A HANDLE  
EXTENSION...

YOU WILL NEED A PIECE  
OF 1" X 2" X 48" LONG  
RECTANGULAR TUBING  
(.083 WALL THICKNESS).  
THE SHORT HANDLE ON  
THE RATCHET IS DESIGNED  
TO FIT INSIDE OF THE  
1" X 2" WITHOUT EXCESS  
PLAY, AND WILL PROVIDE  
ALL THE LEVERAGE YOU  
WILL NEED TO BEND EVEN  
THE TOUGHEST TUBING.

## PRO TOOLS

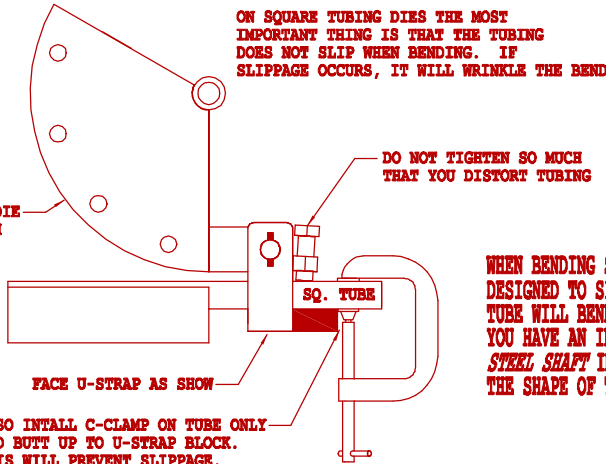
DIVISION OF  
PRO MANUFACTURING  
11313 THONOTOSASSA ROAD  
THONOTOSASSA, FLORIDA 33592

# SQUARE TUBING BENDING INSTRUCTIONS

## SQUARE TUBE CLAMPING INSTRUCTIONS

THIS IS A PICTURE OF A MECHANICAL DIE, BUT THE CLAMPING PROCEDURE IS THE SAME ON HYDRAULIC DIE ALSO.

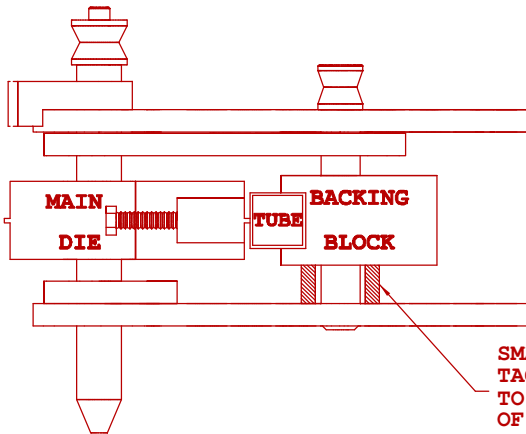
RIDGE IN CENTER OF DIE MUST BE ALIGNED WITH CENTER OF TUBE



ALSO INSTALL C-CLAMP ON TUBE ONLY AND BUTT UP TO U-STRAP BLOCK. THIS WILL PREVENT SLIPPAGE. (ALSO SEE SHEET 2 FOR AN ALTERNATIVE ANTI-SLIP METHOD)

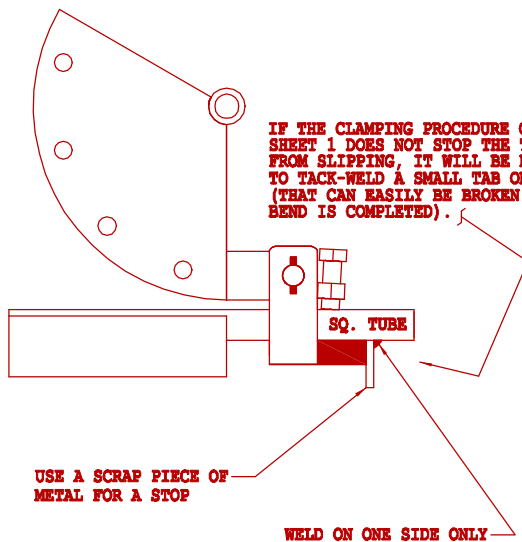
ON SQUARE TUBING DIES THE MOST IMPORTANT THING IS THAT THE TUBING DOES NOT SLIP WHEN BENDING. IF SLIPPAGE OCCURS, IT WILL WRINKLE THE BEND

WHEN BENDING SQUARE TUBING, THE RIDGE THAT IS MACHINED ON THE SQ. DIE IS DESIGNED TO SINK THE INSIDE OF THE BEND IN SO THAT THE TOP & BOTTOM OF THE TUBE WILL BEND PROPERLY. THIS IS THE ONLY WAY TO BEND SQUARE MATERIAL UNLESS YOU HAVE AN INSIDE MANDREL BENDER. THIS TYPE OF BENDER INSERTS A *FLEXIBLE STEEL SHAFT* INSIDE THE TUBE DURING THE BENDING PROCESS IN ORDER TO MAINTAIN THE SHAPE OF THE TUBE. MANDREL BENDERS ARE EXTREMELY EXPENSIVE.



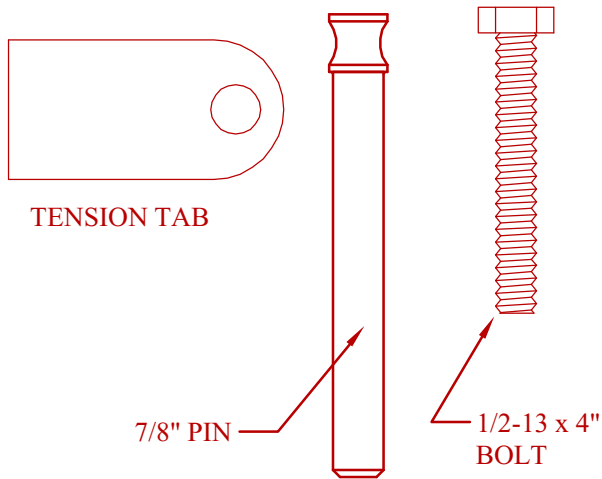
### (HELPFUL TIPS)

WHEN INSTALLING THE TUBE, YOU WILL FIND IT VERY HANDY IF YOU TACK WELD A SMALL PIECE OF TUBING UNDER THE BACKING BLOCK SO THAT IT WILL ALWAYS STAY CENTERED.

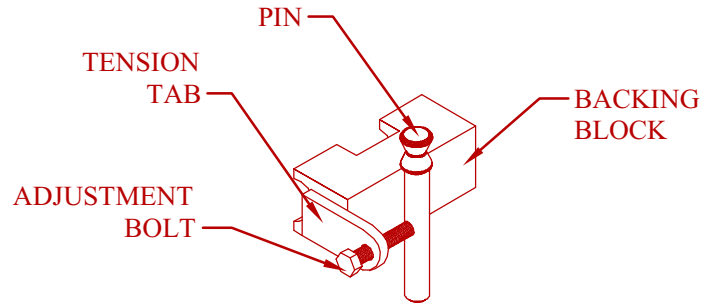


IF THE CLAMPING PROCEDURE ON SHEET 1 DOES NOT STOP THE TUBE FROM SLIPPING, IT WILL BE NECESSARY TO TACK-WELD A SMALL TAB ONTO THE TUBE (THAT CAN EASILY BE BROKEN OFF AFTER THE BEND IS COMPLETED).

# MECHANICAL BENDER TENSION ADJUSTER INSTRUCTIONS

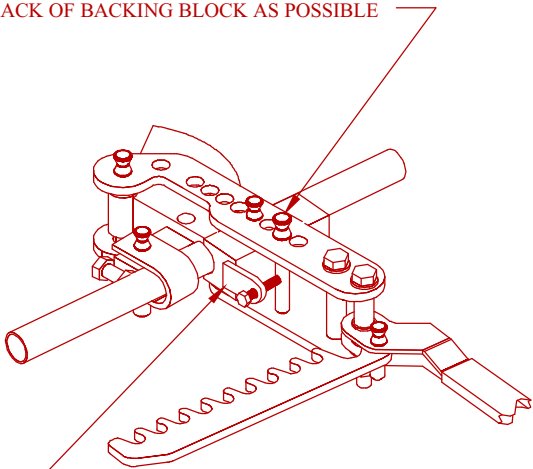


THE ABOVE PARTS ARE NECESSARY TO INSTALL THE TENSION ADJUSTER ON YOUR MECHANICAL BENDER



THE PURPOSE OF THIS ATTACHMENT IS TO CONTROL NECKING ON THE INSIDE OF THE BEND ON THIN WALL TUBING. IT WILL ALSO KEEP THE TUBE SEATED IN THE DIE RADIUS, THROUGH THE COMPLETE BENDING PROCESS, WHEN MAKING 180° BENDS. THE FOLLOWING INSTRUCTIONS WILL SHOW HOW TO INSTALL THE TENSION ADJUSTER AND EXPLAIN ITS PROPER USE:

1. INSERT PIN IN HOLE AS CLOSE TO BACK OF BACKING BLOCK AS POSSIBLE

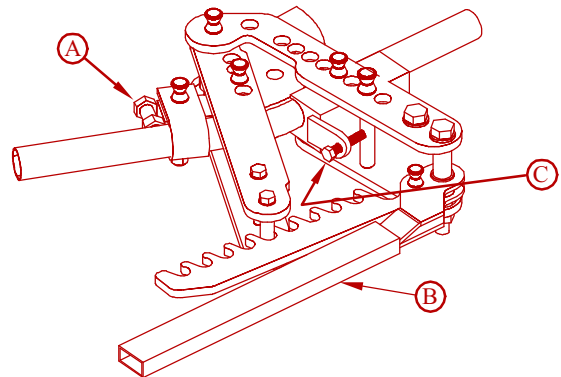


2. POSITION TENSION TAB ON END OF BACKING BLOCK SO THAT THE ADJUSTMENT BOLT STRIKES THE CENTER OF THE PIN -- WELD THE TAB TO THE BACKING BLOCK

## NOTE:

IT MAY BE NECESSARY TO EXPERIMENT WITH DIFFERENT AMOUNTS OF PRESSURE ON THE TENSION BOLT, AS THIS WILL AFFECT THE QUALITY!

## PROPER USE OF THE TENSION ADJUSTER

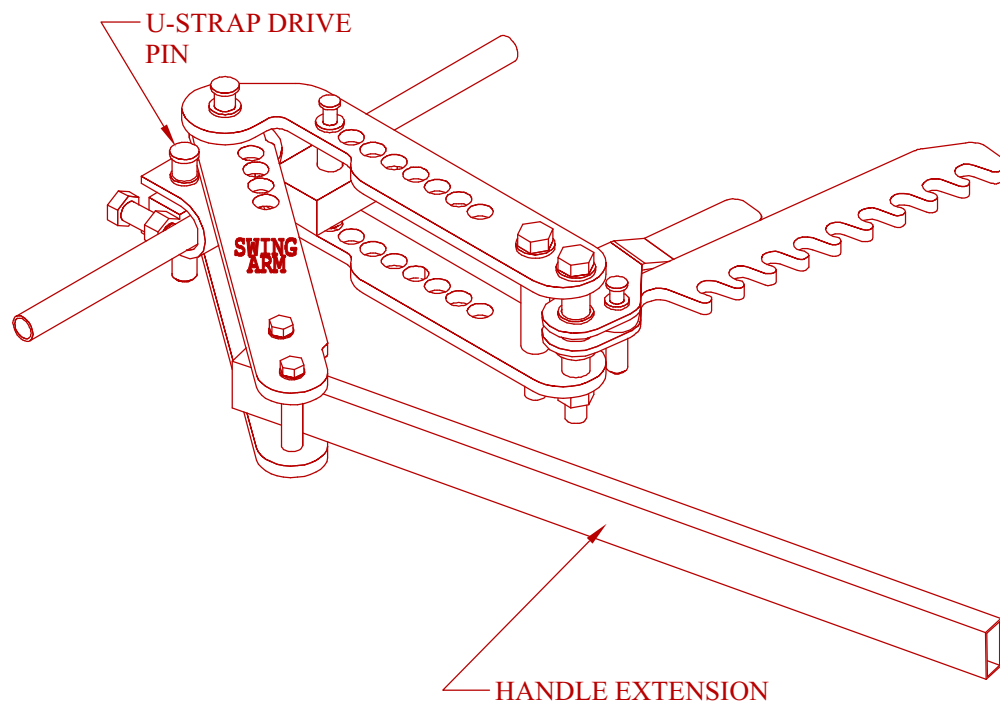


- STEP 1 - INSTALL DIE-SET, INCLUDING THE 7/8" PIN THAT THE TENSION ADJUSTMENT BOLT PUSHES AGAINST (REMEMBER TO LUBE BACKING BLOCK).
- STEP 2 - PULL SWING ARM OUT UNTIL THE TUBE IS READY TO BEND.
- STEP 3 - TIGHTEN THE U-STRAP BOLT ("A").
- STEP 4 - MAKE ONE COMPLETE PULL WITH THE RATCHET AS SHOWN IN ("B") AND DO NOT RELEASE.
- STEP 5 - TIGHTEN THE TENSION ADJUSTMENT BOLT ("C") BUT DO NOT OVERTIGHTEN -- THIS WILL ENSURE THAT THE SWING ARM WILL NOT "SPRING-BACK" WHEN THE RATCHET IS RELEASED FOR ANOTHER PULL.
- STEP 6 - REPEAT STEPS 4 & 5.
- STEP 7 - THE FIRST 2 OR 3 PULLS ON THE RATCHET WILL REQUIRE RE-TIGHTENING OF THE TENSION BOLT AFTER THAT, IT WILL NOT BE NECESSARY.
- STEP 8 - UPON ACHIEVING THE CORRECT AMOUNT OF BEND, BACK-OFF THE TENSION BOLT BEFORE RELEASING THE RATCHET HANDLE AND REMOVING THE TUBE.

# SMALLER TUBE AND DIE SIZES

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SOME SMALL DIES ARE TOO SMALL TO DRILL DRIVE HOLES. IN THIS CASE THE OUTSIDE OF THE SWING ARM PUSHES AGAINST THE U-STRAP DRIVE PIN.



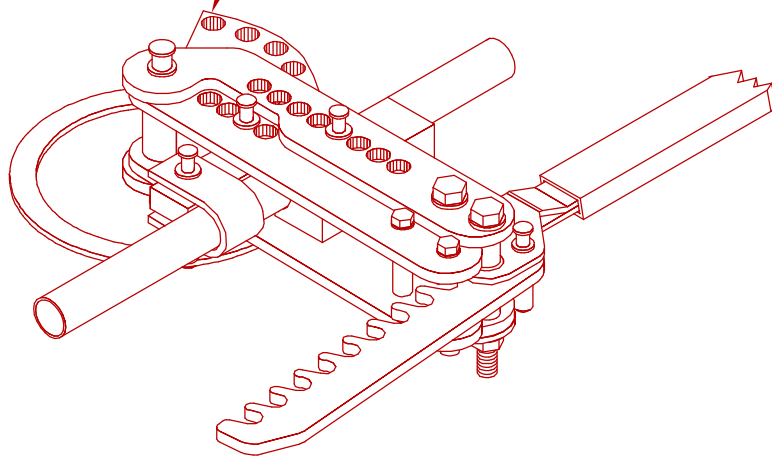
WITH SMALLER TUBE SIZES, THE RATCHET IS NOT NEEDED. FOR A QUICKER BEND, SIMPLY INSERT THE HANDLE EXTENSION BETWEEN THE TWO BOLTS ON THE SWING ARM (AS SHOWN ABOVE) AND PULL THE HANDLE AND SWING ARM AROUND TO CREATE THE DESIRED BEND.

# WARNING!!!

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## **WARNING! WARNING! WARNING!**

IF YOU INSTALL A PIN IN THE DIE HOLE ON THE BACK SIDE OF THE ARM, IT WILL DESTROY THE MAIN ARMS AND THIS IS NOT COVERED UNDER WARRANTY!!!



## **IMPORTANT!**

ALL PINS MUST GO ALL THE WAY THROUGH BOTH ARMS OF THE BENDER OR THE HOLES IN THE ARM WILL BECOME DISTORTED -- DISTORTED HOLES ARE ALSO NOT COVERED UNDER WARRANTY!!!

## **PRO-TOOLS**

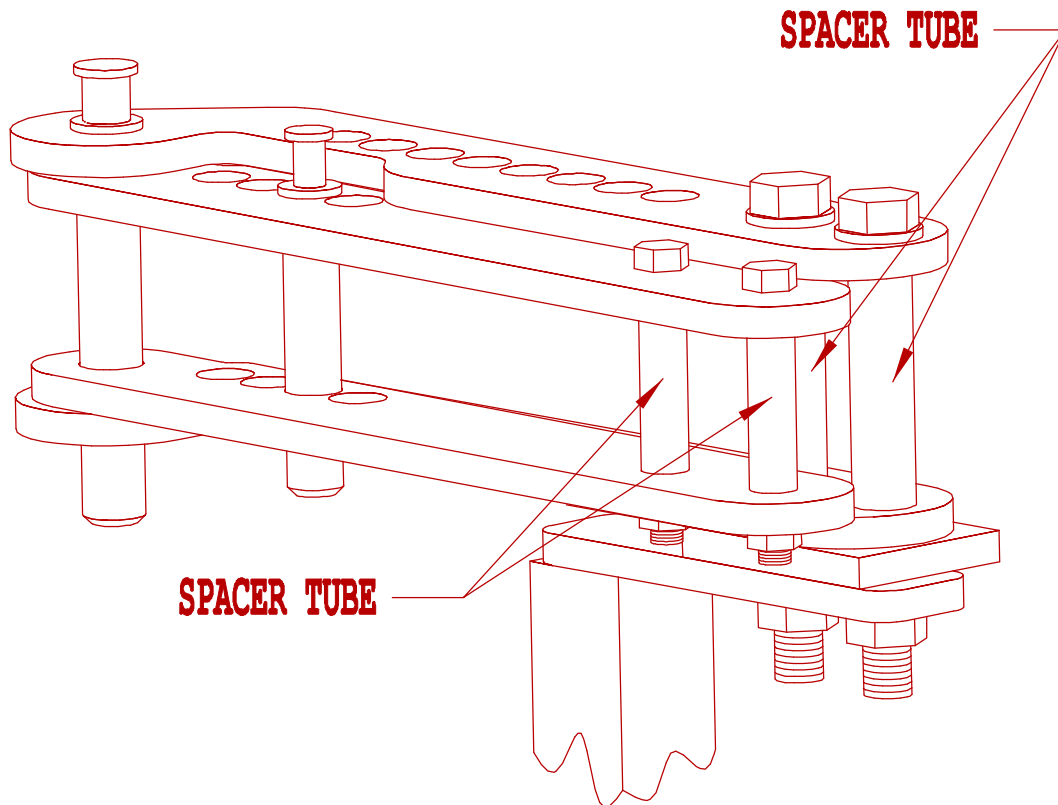
DIVISION OF  
**PRO MANUFACTURING**  
7616 INDUSTRIAL LANE  
TAMPA, FLORIDA 33637

# SPECIAL WIDE DIES

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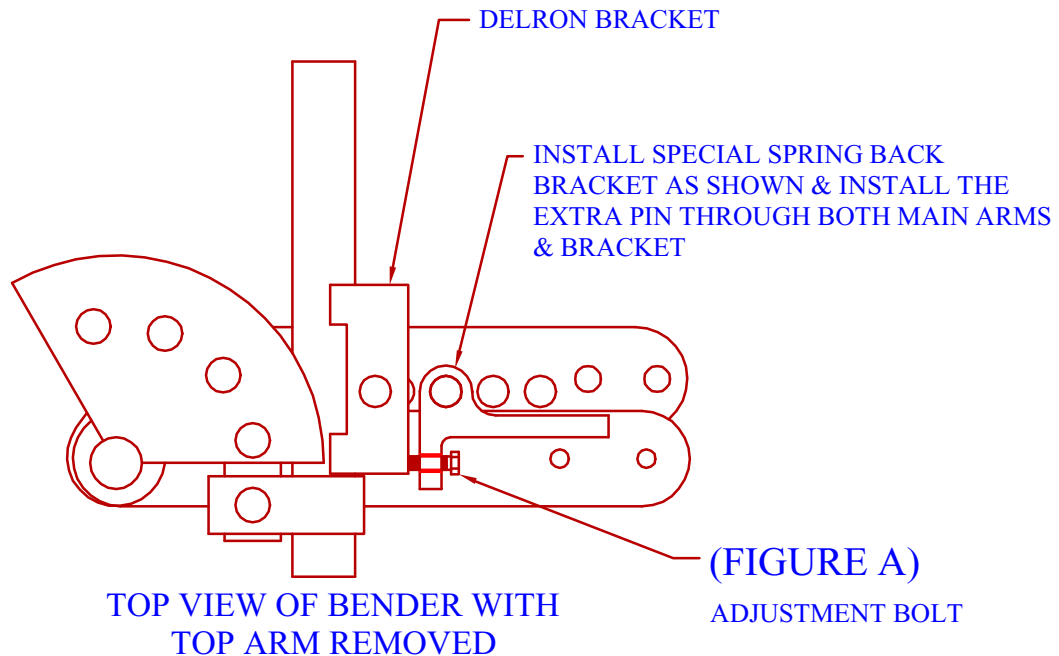
## IMPORTANT!

ON SPECIAL DIES, THAT ARE WIDER THAN THE STANDARD DIES, IT WILL BE NECESSARY TO REPLACE THE FOUR SPACER TUBES ON THE BENDER WITH THE LONGER TUBES SUPPLIED WITH YOUR SPECIAL DIE SET -- WHEN CHANGING BACK TO THE STANDARD DIE SET, YOU WILL NEED TO REINSTALL THE STANDARD LENGTH SPACERS BEFORE BENDING.





# 105 SPRING BACK INSTRUCTION FOR DELRON BACKING BLOCKS



## INSTRUCTIONS:

### STEP 1

AFTER THE SPRING BACK BRACKET IS IN PLACE, PULL RATCHET THROUGH A COMPLETE PULL & HOLD (DO NOT RELEASE)

### STEP 2

BEFORE RELEASING RATCHET FOR ANOTHER PULL, SNUG BOLT IN FIGURE A. (DO NOT OVERTIGHTEN) TIGHTEN JUST ENOUGH SO THE SWING ARM DOES NOT MOVE WHEN YOU RELEASE THE RATCHET.

### STEP 3

REPEAT THIS PROCESS 2 OR 3 TIMES & AFTER THAT YOU CAN CONTINUE TO BEND WITHOUT TIGHTING THE BOLT ANYMORE.

### STEP 4

LOOSEN ADJUSTMENT BOLT BEFORE REMOVING TUBE.

## ! IMPORTANT:

BECAUSE THE DELRON BLOCK IS WIDER THAN A STEEL BLOCK, IT IS NECESSARY TO REPLACE THE SLEEVES TO SPACE THE ARMS FARTHER APART.

EVERYTHING IS PROVIDED IN THE KIT.

# IMPORTANT !

INSTALL - COLLAR AROUND SWING  
ARM SLEEVE AS SHOWN. SET COLLAR  
WHERE IT HOLDS THE RATCHET LEVEL  
WHEN RATCH PUSHES STRAIGHT IT  
WILL NOT BEND.

