

CINCINNATI®

**MECHANICAL
PRESS
BRAKE
SAFETY
MANUAL**



SAFETY IS EVERYONE'S JOB

Press Brakes manufactured today by CINCINNATI INCORPORATED comply with the construction requirements of the Occupational Safety and Health Act and the American National Standards Institute. CINCINNATI INCORPORATED also offers field update packages which can be retrofitted on your older machines to assist you in OSHA compliance and your own safety programs.

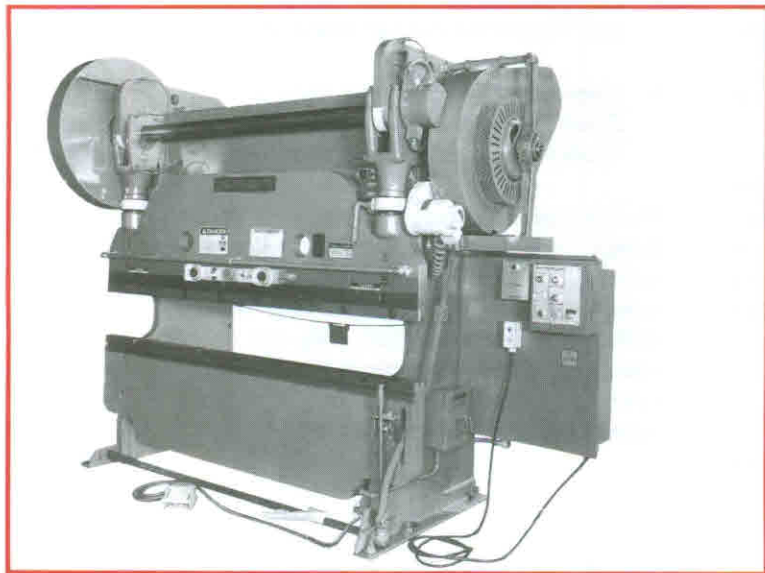
CINCINNATI recommends you read and understand the safeguarding, use and care requirements of the American National Standard for Power Press Brakes, ANSI B11.3. This is available from the American National Standards Institute, 11 West 42nd Street, New York, New York 10036.

For additional safety information we recommend:

- Securing applicable safety data sheets from the National Safety Council, 1121 Spring Lake Drive, Itasca, Illinois 60143-3201.
- Determining your responsibilities under your state and local safety code.
- Requesting assistance from the Loss Prevention Department of your Workman's Compensation carrier.

Personnel responsible for your press brake operator training program, tooling set-up, maintenance and operation must read and understand this safety manual and the operation manual. No one should set-up, operate or maintain this equipment until they completely understand it and know how to do their job safely.

SAFETY RECOMMENDATIONS FOR MECHANICAL PRESS BRAKE OPERATION



IMPORTANT

Never operate or maintain this machine without proper instructions and without first reading and understanding the Operation, Safety and Maintenance manual.

This safety bulletin is not intended as a substitute for the Operation, Safety and Maintenance manual for CINCINNATI Mechanical Press Brakes which is furnished by CINCINNATI INCORPORATED with each machine.

Your CINCINNATI Mechanical Press Brake is a versatile and multi-functional machine. You must evaluate each operation before any material is worked to determine the safeguarding method(s) to be used.

Safety is of the first importance in the operation of this machine. When in doubt **always** take the safe course.

FOR SAFE OPERATION OF YOUR CINCINNATI PRESS BRAKE

Keep clear of work area

The purpose of a Press Brake is to bend metal and it is obvious that this same capacity will sever arms, hands, fingers or any other part of the body that is in the point-of-operation when the ram is activated.

During operation, all parts of your body must be completely clear of the work area. **NEVER PLACE ANY PART OF YOUR BODY IN THE POINT-OF OPERATION (die area).**

If foot controls are used, and your evaluation of the specific operation indicates safeguarding is necessary, provide the necessary safeguarding before any work is performed. (See ANSI B11.3)

If you use two-hand operator control station(s), be certain they comply with ANSI B11.3.

If operation by more than one person is required, operator controls must be furnished for each person.

If operation by more than one person is required and only one control is available, one person should be responsible to see that not only his own body is clear of the point-of-operation and all moving parts, but that his coworkers are clear and entirely visible in a safe location before the machine is operated.

During set-up, maintenance or other work on the machine which necessitates manipulation within the point-of-operation, the ram should be at the bottom of the stroke or it should be blocked so that the dies cannot close, the flywheel stopped, the power supply disconnected and a lockout/tagout procedure followed.

Concentrate on your job

Daydreaming, worrying about other problems or improper operation of

a machine could cripple you for life. Operating a Press Brake requires your complete attention. Talking, joking, or participating in or watching horseplay could result in physical injury to you, and that is not something to joke about. So watch what you are doing and concentrate on your job.

Neatness is important

Keep the floor of your work area clear of scrap, trash and oil that could cause you to stumble or slip. Put scrap in the proper containers and keep stock and finished work neatly arranged. Be sure slippery surfaces are cleaned up properly. Stumbling and slipping can result in painful and perhaps even fatal injuries.

Put all tools and equipment away when you are not using them. Only the part being formed should be on the machine when it is operating. Even a screwdriver can be deadly if

CINCINNATI MECHANICAL PRESS BRAKES

left on the Press Brake bed or the lower die.

Proper tools are important

Use the proper tools when working on the Press Brake. An improper tool might slip and cause lacerations. When making repairs on the machine, disconnect the power source and be sure the ram is at the bottom of the stroke or blocked in place with the flywheel stopped. Follow the lockout/tagout procedure of your company.

Loose or flowing clothes may be comfortable, but if they are caught on the machine, it could result in injury to you. That I.D. bracelet you got for Christmas could cost you your hand or finger.

Look things over carefully

Before operating your CINCINNATI Mechanical Press Brake, look to see if your machine is in proper

condition. Are the dies worn? Is the floor clear of rubbish? Are the machine's covers and guards securely in place? Is the machine securely anchored to the floor? Are all nuts, bolts and screws tight? Is the stock neatly arranged? Is everything in proper operating condition? If not, report any unsafe conditions or any need for repair to your supervisor and make sure the problem is corrected before beginning operations.

Know your machine's capacity

The CINCINNATI Press Brake you are operating has a maximum capacity shown on the capacity plate. Check the charts in the Operation manual for the tonnage required to bend the metal you are forming. By applying too much force you can damage the tooling, the drive mechanism or the bed and ram of the machine. When using short or small area dies, the force

must be reduced to avoid damage to the tooling or the bed or ram. Too much tonnage may cause a die to rupture and cause injury.

TO REDUCE THE POSSIBILITY OF SERIOUS INJURY FOLLOW THESE RULES:

1. Know how to safely operate and adjust your CINCINNATI Press Brake. Review the Operation, Safety and Maintenance manual provided by CINCINNATI INCORPORATED.
2. Never place any part of your body in the point-of-operation (die area). Placing your hands or any part of your body in the point-of-operation may result in serious injury or amputation.
3. Keep the die area free of loose tools and materials. When placing stock in the machine for forming, be certain the gages

and stops are correctly set and the edge of the stock is set flush with the gages.

4. Evaluate each operation to determine the point-of-operation safeguarding to be used.
5. Use the point-of-operation safeguarding selected, or method of operation selected to minimize the exposure to the potential hazards at the point-of-operation.
6. For small part insertion and removal, use a hand tool. **DO NOT PLACE YOUR HANDS IN THE POINT-OF-OPERATION.**
7. Maintain proper lighting levels and eliminate light glare to prevent eye strain and eye fatigue.
8. Protect your eyes from flying pieces of metal by always wearing your safety glasses.
9. Always wear safety shoes. A heavy or pointed piece of stock could fall and cause serious injury to your foot.
10. Stand clear of the workpiece with thumbs and fingers beneath the workpiece and arms slightly extended to avoid being hit in the face if the stock whips upward as the bend is made. With some dies the whip is down. Be sure you know how the workpiece will react to the bend being made.
11. Releasing the electrical palm-buttons or the foot treadle (or electrical foot control switch, if so equipped) of your Mechanical Press Brake will stop downward travel of the ram in case of an emergency.
12. Wear snug fitting hand and arm protection when handling rough or sharp edged stock.
13. When leaving the machine, place the ram at the bottom of the stroke or place safety blocks in position under the ram, engage the treadle lock or turn the operator control switch OFF or shut the power OFF, even if you will only be away for a few minutes.
14. Have the levelness of your machine checked approximately once a month. See the Operation, Safety and Maintenance manual supplied by CINCINNATI INCORPORATED for the proper procedure.
15. Check the alignment of the dies before operating the machine after the dies have been changed or the machine has been idle overnight. Improper alignment could cause chipping. These flying chips can cause lacerations and eye injuries

16. Report any cuts, bruises or other injuries to your supervisor or the Medical Department immediately. They are the best judge of how serious or minor your injury may be.

Installing, Removing and Transferring Tooling (Dies)

Installing, removing and transferring tooling is hazardous and should be done with proper supervision by experienced set-up personnel. Improper handling techniques can

cause muscle strains, hernias or serious disabling injuries.

Whenever tooling is removed from or installed in the machine, always set the ram at the bottom of the stroke and lock the treadle or turn the operator controls to "OFF" position. Turn power OFF and let the flywheel stop before beginning to install or remove dies. At this point, the ram cannot move if the operator control is accidentally depressed. All CINCINNATI Mechanical Press Brakes have register marks on the eccentric shaft to indicate when the ram is at the bottom of the stroke.

The ram elevating control should be used for set-up functions.

1. For safe removal of punches and dies, use the following procedure:
 - a. Clear work area of all stock, containers, tools and other equipment.

- b. Turn power OFF and place safety block on top of lower die.
- c. Clean both upper and lower dies using a bench brush and finally wipe clean with a cloth. Inspect the dies for chips, cracks or other hazardous conditions. Remove safety blocks after all work in the die area is finished and jog the machine to the bottom of the stroke. Shut down your machine and wait until the flywheel has stopped.
- d. Jog the ram adjusting motor until the upper and lower dies are completely closed. Loosen the ram clamp bolts to release the upper die.
- e. Jog the ram adjusting motor up to release any pressure between the dies (about 1/8").
- f. Slide upper die out of machine slightly more than half way.

**SAFETY IS PART OF
YOUR JOB . . . THE
MORE ATTENTION YOU
PAY TO DEVELOPING
SAFE HABITS, THE
LESS THE CHANCES
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AND YOUR FELLOW
EMPLOYEES.**

- g. Attach a lifting sling at the middle of the die and lift the upper die from the lower die.
 - h. Now, slide the die the remaining distance so it clears the ram. Transfer it to the tool storage area, making sure the working surfaces are protected from nicks and scratches. Be sure that dies which are too heavy are blocked to prevent tipping.
 - i. Loosen the bolts holding the lower die to the filler block.
 - j. Slide the lower die out of the machine. Lift in the same manner as used for the upper die and transfer this die to the tool storage area.
- 2.** Transfer dies using the proper techniques for the weight of the die being handled:
- a. Very light dies (up to 50

pounds) can be carried manually or transferred to a die truck.

- b. Dies weighing over 50 pounds or that are awkward to handle should be moved by a hoist.

CAUTION

If the punch or die has tapped holes for lifting attachments, be sure the proper size bolts are used. A bolt smaller in diameter than the tapped hole will slip out and can cause serious injury. If no lifting attachments are provided, use only approved slings so the dies will not fall and cause injury to you.

Lift the dies high enough to clear any obstructions, but no higher.

CAUTION

Stay clear of die and punches while they are being transferred, particularly when dies are being

lifted. If a die should slip, serious injury, including the loss of hand, a foot or even your life could result.

- 3.** When setting up punches and dies:
- a. Make sure the top of the Press Brake bed and the top of the filler block are clean. The ram must be at the bottom of the stroke before they are cleaned and wiped.
 - b. Inspect the dies for chips, cracks, etc. Wipe them off with a clean cloth.
 - c. With the ram at the bottom of the stroke and the filler block in place but not bolted tight, place the lower die on the filler block in such a way that the load will be centered between the side housings if possible. Tighten the die clamping set screws in the filler block. The die should sit

firmly on its supporting shoulders. Locate the filler block so the die vee is centered above the slot in the bed and temporarily tighten the clamp bolts. Use die aligners front and back whenever practical.

- d. Adjust the ram by means of the ram adjusting motor so that just enough space remains for the upper die. Slide the upper die into place and tighten the die clamp bolts securely enough so it will not drop out. Adjust the ram upward to free it from the lower die and place safety blocks on the lower die. Recenter the lower die by sight. Now remove the safety blocks and adjust the ram downward to seat the die in the die clamps and complete the final tightening of the upper die clamp bolts.

- e. Adjust the ram upward to metal thickness clearance at the slopes of the die. Adjust the alignment of the filler block until the clearances are alike when the filler block is bolted securely to the bed. Check at both ends and the middle of the die with feeler gages or strips of metal of proper thickness. This completes the alignment set-up.

- f. The ram must now be adjusted to produce an acceptable part. This may require a different setting at one end from the other to compensate for errors in dies and differences that may occur in wear on the dies. Some jobs will require shimming of dies to correct for machine deflections. If the load is too light to deflect the bed and ram to a parallel condition, shims may be required.

- g. A definite change in the angle of the bend will be noted if the ram adjustment or shimming is changed only a few thousandths of an inch in thickness. This "tapering" procedure is important in obtaining a satisfactory result.

- h. Select the appropriate point-of-operation safeguarding for your set-up and activate or install it. Turn ON the machine and test your set-up and the safe-guarding. (See ANSI B11.3 standard for point-of-operation safeguarding help.)

- i. Make test bends using the same thickness and type of material that will be used on the job. Adjust the ram setting until a satisfactory bend is made.

- j. When a satisfactory set-up has been made, all informa-

tion, such as dies used, filler block used, ram adjustment reading, ram tilt readings, gage setting dimensions, shims (if any) and other notes that would help repeat the job with a minimum set-up time should be recorded.

- k. Review the proper operating procedure with all employees working at the machine and make sure they understand it and the safeguarding method being used.

SAFETY SIGNS

In order that press operators and maintenance personnel may be reminded of certain potential hazards that may exist — unless specified procedures are followed — a number of warning signs are attached to CINCINNATI Mechanical Press Brakes. Warning signs are not intended to be a substitute for reading and understanding the Operation, Safety and Maintenance sections of the machine manual.

Warning signs are placed at strategic points on the machine for the most effective use. It is intended they become a permanent part of the equipment and, therefore, must not be removed, covered, hidden or defaced.

The following illustrations are of the warning signs most commonly used on Mechanical Press Brakes.



SAFETY GUIDELINES

MECHANICAL PRESS BRAKE

- READ AND UNDERSTAND THE OPERATION AND SAFETY MANUAL
- KNOW HOW TO USE THE OPERATOR CONTROLS AND MODES OF OPERATION

SET UP

- POSITION RAM AT BOTTOM OF WORKING STROKE
- TURN OPERATOR CONTROLS "OFF" (key lock) OR REMOVE FOOT PEDAL (or lock treadle) WHEN WORKING IN THE DIE AREA
- SET PROPER DIE SPACE USING MOTORIZED RAM ADJUSTMENT
- USE "INCH" MODE AND TWO HAND CONTROL
- TO AVOID SPLITTING THE DIE, MAKE CERTAIN TONNAGE CAPACITY OF THE DIE IS NOT EXCEEDED
- PROVIDE POINT OF OPERATION SAFEGUARDING
- TEST ALL THE REQUIRED OPERATOR CONTROL STATIONS, MODES OF OPERATION AND SAFEGUARDING
- INSTRUCT OPERATOR IN PROPER USE OF SET-UP
- REMOVE ALL KEYS UNDER SUPERVISORY CONTROL

OPERATION

- USE POINT OF OPERATION SAFEGUARDING
- KNOW THE SET-UP AND PROPER METHOD OF OPERATION
- TEST ALL THE REQUIRED OPERATOR CONTROL STATIONS AND MODES OF OPERATION BEFORE EACH SHIFT, EACH JOB RUN, AND AFTER EACH BREAK
- KEEP HANDS OUT OF DIE AREA (point of operation)
- DO NOT POSITION ANY PART OF YOUR BODY WHERE IT MAY BE STRUCK OR CRUSHED BY PART MOVEMENT
- USE HAND TOOLS FOR SMALL OR NARROW PIECE PARTS
- MAKE CERTAIN EVERYONE IS CLEAR OF PRESS BRAKE DIES AND MATERIAL BEFORE OPERATING
- TURN OFF OR LOCKOUT OPERATOR CONTROLS WHEN NOT OPERATING PRESS BRAKE
- WHEN YOU LEAVE THIS PRESS BRAKE
 - POSITION RAM AT BOTTOM OF WORKING STROKE
 - TURN OFF OR LOCKOUT OPERATOR CONTROLS
 - TURN POWER OFF

DO NOT REMOVE THIS SIGN FROM PRESS BRAKE
140008

! DANGER

TO REDUCE THE POSSIBILITY OF INJURY . . .

DO NOT PLACE YOUR HANDS
IN THE DIE AREA



DO NOT POSITION ANY PART OF YOUR
BODY WHERE IT MAY BE STRUCK
OR CRUSHED BY PART MOVEMENT



ALWAYS READ AND UNDERSTAND THE
OPERATION, MAINTENANCE AND
SAFETY MANUAL BEFORE
INSTALLING DIES, OPERATING OR
SERVICING THE PRESS BRAKE



DO NOT REMOVE THIS SIGN FROM THIS PRESS BRAKE

140008

SAFETY MAINTENANCE CHECK

- SAFEGUARDING at point-of-operation in proper adjustment – operating properly
- PINCH POINT guarding is properly installed
- OPERATOR CONTROLS working O.K.
- OPERATING MODES are functioning properly
- RAM starting and stopping properly
- WARNING PLATES clean – easily read
- ELECTRICAL WIRING in good condition
- CAUTION PAINTING in good condition
- AUXILIARY EQUIPMENT checked and working properly
- HAND TOOLS and personal protective equipment in good order and is readily available
- SAFETY MANUAL and the OPERATOR MANUAL attached to machine
- SCHEDULED NORMAL MAINTENANCE work completed



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