

Kentucky Injury Prevention and Research Center  
Bona fide agent for Kentucky Department for Public Health  
2365 Harrodsburg Rd., Ste. B340, Lexington, KY 40504 • 859 323 4750

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## INCIDENT HIGHLIGHTS



**DATE:**  
January 9, 2023



**TIME:**  
1:51 a.m.



**VICTIM:**  
52-year-old, male,  
Hispanic, press operator



**INDUSTRY/NAICS CODE:**  
Motor Vehicle Brake  
System Manufacturing  
/336340



**EMPLOYER:**  
Motor vehicle brake  
system manufacturing



**SAFETY & TRAINING:**  
Programs and training had  
been provided



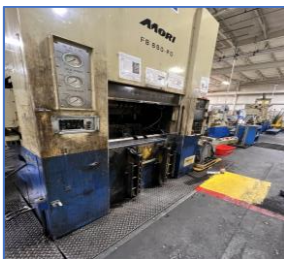
**SCENE:**  
Production line



**LOCATION:**  
Kentucky



**EVENT TYPE:**  
Struck by



**REPORT#:** 23KY003

**REPORT DATE:** March 3, 2025

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## Press Operator Killed by Ejected Fragment

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### SUMMARY

On January 9, 2023, at approximately 1:51 a.m., a 52-year-old Hispanic male press operator was setting up a hydraulic fineblanking press for production use. When the press was operated, a metal balance pin fractured from the pressure and a fragment was ejected from the press. The fragment struck the technician in the neck, opening several major blood vessels. The employee bled to death beside the press from his injuries. ... [READ THE FULL REPORT](#) (p.3)

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### CONTRIBUTING FACTORS

**Key contributing factors identified in this investigation include:**

- Flying debris
- Bypassing equipment safety feature
- Need for training and communication...[LEARN MORE](#) (p.7)

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### RECOMMENDATIONS

**Kentucky investigators concluded that, to help prevent similar occurrences, employers should:**

- Consider prevention through design (PtD) to “design out” or minimize hazards and risk;
- Consider installation of machine guards to help protect workers from the hazard of flying debris from power presses;
- Ensure that equipment safety features cannot be bypassed; and
- Provide training and communication specific to machine operations.

...[LEARN MORE](#) (p.7)

[Kentucky FACE Program](#)



# KENTUCKY

## State **FACE** Program

### Fatality Assessment & Control Evaluation

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#### Fatality Assessment and Control Evaluation (FACE) Program

This case report was developed to draw the attention of employers and employees to a serious safety hazard and is based on preliminary data only. This publication does not represent final determinations regarding the nature of the incident, cause of the injury, or fault of employer, employee, or any party involved.

This case report was developed by the Kentucky Fatality Assessment and Control Evaluation (FACE) Program. Kentucky FACE is a National Institute for Occupational Safety and Health- (NIOSH-) funded occupational fatality surveillance program with the goal of preventing fatal work injuries by studying the worker, the work environment, and the role of management, engineering, and behavioral changes in preventing future injuries. The FACE program is located in the Kentucky Injury Prevention and Research Center (KIPRC). KIPRC is a bona fide agent for the Kentucky Department for Public Health.

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## **INTRODUCTION**

On January 9, 2023, at approximately 1:51 a.m., a 52-year-old Hispanic male press operator was setting up a hydraulic fineblanking press for production use. When the press was operated, a metal balance pin was crushed by the press and a fragment of the pin was ejected from the press. The fragment struck the technician in the neck, opening several major blood vessels.

## **EMPLOYER**

The employer was engaged in the fabrication of motor vehicle brake system components. The primary production operation involved stamping and forming parts from steel rolls. Fifty-two employees worked at the facility on two shifts. It had been in operation for approximately 10 years.

## **WRITTEN SAFETY PROGRAMS and TRAINING**

The employer had implemented a written safety program and provided safety training that included press operation. Work rules were in place that prohibited the bypassing of safety features (e.g., bypassing of interlocks, removal of guards). Also, the employer implemented a disciplinary system to ensure compliance with work rules. Training was provided on work rules and the disciplinary system.

According to the Kentucky Education and Labor Cabinet's Occupational Safety and Health Program (KyOSH), operators of the press did not follow the work rules and bypassed the interlock guard of the press.

## **WORKER INFORMATION**

The deceased worker was a 52-year-old Hispanic male press operator. He had been employed for approximately seven years at the production facility. He worked on the second (night) shift and had worked almost eight hours of his 10-hour shift when he was killed. The deceased worker had been trained in the operation of the press involved in the incident within the last 12 months and had run the press within the last two weeks.

## **EQUIPMENT**

The press involved in the fatal incident was a Mori FB 650-FD hydraulic fineblanking press, manufactured by Mori Iron Works Co., LTD., and represented in Image 1 ([Mori, 2023](#)). The Mori FB 650-FD press applies force in an upward direction from the movement of a piston. Fineblanking presses are used to produce precise and reliable parts for machines, aircrafts, and automobiles.

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Image 1. Mori hydraulic fineblanking press ([Mori, 2023](#))

The press involved in the incident is shown in Image 2. The red arrow indicates the front access door in the raised/open position. The yellow square painted on the floor shows the location of the press operator's station and control panel.



Image 2. Mori hydraulic fineblanking press (Property KY FACE)

Image 3 provides a simple diagram of a generic die that operates in a downward direction to strike the stock metal. The Mori hydraulic fineblanking press, the type of press involved in this incident, operated such that the punch moved in an upward direction.

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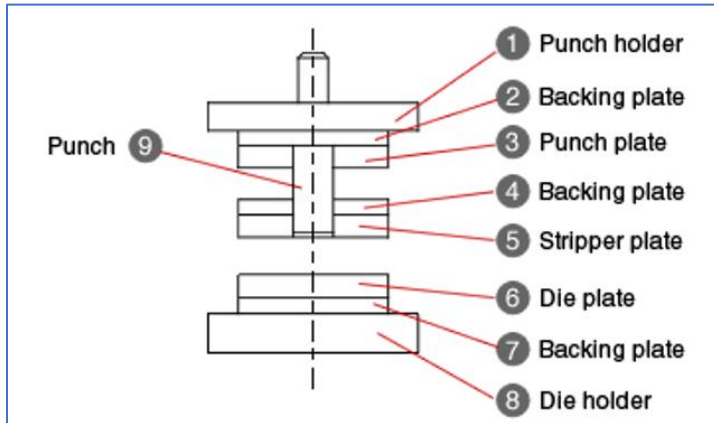


Image 3. Main parts of a die ([Misumi, 2023](#))

The press was equipped with an electric interlock switch that functioned such that the front access door had to be closed before the press would operate. The interlock switch, shown in Image 4, incorporated a roller wheel that rode along the front access door when the door was raised/lowered. It was mounted on the inside of the press housing, about 8 feet from the floor.



Image 4. Access Door Interlock (Property KY FACE)

### INCIDENT SCENE

The incident occurred in the production area of the facility, which housed several production lines. The facility also included offices, a maintenance shop, and a shipping area.

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## INVESTIGATION

The incident occurred during the second (night) shift. Eleven employees were present at the facility, but there were no eyewitnesses to the incident. The employer's security camera system captured video of the deceased worker in the process of setting up the press prior to the fatal incident. For the set-up process, the worker raised the front access door and inserted a rag into the machine, bypassing the door's interlock switch and allowing the press to operate with the door open.

He continued the setup process with the front access door open, positioning the coil steel in the die area of the press and making tool adjustments. The worker then stepped back from the die to the control panel and operated the machine in single-action (e.g., bump or jog) mode. The press was not subjected to lockout/tagout because the work process was a minor adjustment that required operation of the press. OSHA's machine guarding standard at 29 CFR 1910 Subpart O ([2013](#)) requires that employees be protected from machine hazards during normal production operations using machine guards and similar safety devices. OSHA's control of hazardous energy (lockout/tagout) standard at 29 CFR 1910.147 ([2011](#)) protects employees during servicing and/or maintenance work, with the exception that lockout/tagout is not required for servicing and/or maintenance work (such as minor tool changes and adjustments) during normal production operations.

When the press closed, a metal balance pin fractured and a piece was ejected from the press. The projectile struck the technician in the neck, opening several major blood vessels. The worker was positioned at the control panel, approximately 1 to 2 feet from the die area, when he was hit. He died shortly thereafter.

Inspection of the die area of the press after the incident found several pieces of the balance pin. The balance pin was made of tempered steel with a hardness of at least 64 on the Rockwell scale, which is considered relatively brittle. The purpose of a balance pin is to apply force evenly from the die to the stock metal. The balance pin was attached to the punch plate. As the punch plate and die plate meet during operation, the balance pin enters a hole in the punch plate. The balance pin involved in this incident was self-collapsing and spring-loaded, allowing the pin to collapse somewhat when the punch plate and die met during operation. A balance pin of the same type as the one involved in this incident is shown in Image 5.

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Image 5. Balance pin (Property KY FACE)

A technician who maintained the press involved in the incident reported that it was a mystery to him how the pin could have shattered. The management staff at the facility were also unable to explain exactly how the event occurred. According to KyOSH, the broken balance pin and pieces of it remained in the press.

### CAUSE OF DEATH

The cause of death was a penetrating injury to the neck due to a perforation of the left lobe of the thyroid, trachea, and major blood vessels.

### CONTRIBUTING FACTORS

Occupational injuries and fatalities are often the result of one or more contributing factors or key events in a larger sequence of events that ultimately result in the injury or fatality. Kentucky FACE has identified the following unrecognized hazards as key contributing factors in this incident:

- Flying debris,
- Bypassing equipment safety features, and
- Need for training and communication.

### RECOMMENDATIONS/DISCUSSION

**Recommendation #1: Employers and manufacturers should consider prevention through design (PtD) to “design out” or minimize hazards and risk.**

Discussion: In considering the hazards associated with power press operations, employers should consider the prevention through design (PtD) approach to prevent and minimize such hazards. This approach is considered by the National Institute for Occupational Safety and Health [[NIOSH, 2013](#)] to be one of the best ways to prevent and control occupational injuries, illnesses, and fatalities.

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The mission of the national PtD initiative is to prevent or reduce occupational injuries, illnesses, and fatalities through the inclusion of prevention considerations in all designs that impact workers. The mission can be achieved by:

- Eliminating hazards and controlling risks to workers to an acceptable level “at the source” or as early as possible in the life cycle of items or workplaces;
- Including design, redesign, and retrofit of new and existing work premises, structures, tools, facilities, equipment, machinery, products, substances, work processes, and the organization of work; and
- Enhancing the work environment through the inclusion of prevention methods in all designs that could impact workers.

PtD encompasses all the efforts to anticipate and “design out” hazards to workers; such efforts can include changes to construction design, work methods and operations, equipment, and the organization of work, along with the use of new technologies. The focus of PtD is on workers who execute the designs or must work with the products of the design. The initiative has been developed to support designing out hazards, the most reliable and effective type of hazard prevention.

By utilizing PtD, power press manufacturers and owners could eliminate or reduce the hazards produced by fragments being ejected from the point of operation by manufacturing new and retrofitting older presses that incorporate additional safety features like those discussed in Recommendations 2 and 3 (guarding, safety interlock wiring methods, and less accessible interlocks).

***Recommendation #2: Employers should provide guards to help protect workers from the hazard of flying debris ejected from power presses.***

Discussion: Although the front access door of the press involved in this incident could have served as a guard from flying debris from the press’s point of operation, it was bypassed and the machine was operated with the door open. To serve as an additional layer of protection, employers should consider the installation of machine guards in locations around the point of operation. Several types of guards exist (e.g., fixed, adjustable), that may be installed concurrently to provide multiple layers of protection. In developing guarding controls, employers should review the press manufacturer’s guidance, the requirements of OSHA’s *Mechanical power presses* standard at [29 CFR 1910.217](#), and guidance provided by the American National Standards Institute’s standard [ANSI B11.2-2013](#) (R2020) *Safety Requirements for Hydraulic and Pneumatic Power Presses*.

Following the fatal incident, the employer installed a guard to help protect workers from the hazard of flying debris ejected from the press. A fixed guard composed of thick-gauge steel was attached to the punch (upper) portion of the press so that it would move downward with the stroke of the press to guard the point of operation and help deflect flying debris from the press. The guard is indicated by a red arrow in Image 6.



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Image 6. Fixed guard (Property KY FACE)

**Recommendation #3: Employers should ensure that equipment safety features cannot be bypassed.**

Discussion: The press was equipped with an interlock switch on the front access door intended to prevent the machine's operation when the door was open. However, because the interlock was bypassed in this incident, the machine was operable without the door in the closed position.

Following the fatal incident, the employer made the front door interlock more difficult to bypass by moving it to a location several feet higher from the floor. The employer also altered the wiring of the protective mechanism of the interlock switch, to make the press inoperable whenever the door was open, even if the switch was bypassed physically.

During the fatal incident, the interlock operated as follows:

- Door open (switch extended) = safety circuit activated, machine inoperable
- Door open (switch depressed with rag to bypass) = safety circuit off, machine may operate
- Door closed (switch depressed) = safety circuit off, machine may operate

After the fatal incident, the interlock was rewired by the employer as follows:

- Door open (switch extended) = safety circuit off, machine inoperable
- Door open (switch depressed with rag to bypass) = safety circuit off, machine inoperable
- Door closed (switch depressed) = safety circuit activated, machine may operate

Employers should consider a variety of means to optimize equipment safety features, such as moving the location of interlocks and/or alteration of their protective mechanisms. The application of multiple concurrent safety features could provide an even greater margin of safety.

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***Recommendation #4: Employers should provide training and communication specific to machine operations to help protect and educate workers from the hazard of flying debris ejected from presses.***

Discussion: While the employer had a training program in place prior to the incident, the bypassing of an equipment safety feature suggests that additional, effective training and communication was needed relative to the hazards associated with press operations and the means for their control, especially the need for employees to utilize equipment safety features.

Employers should ensure that employees are protected through the implementation of work rules that specifically prohibit the bypassing of safety features. These should be communicated to employees through education and training. Equally, employers should ensure through direct observation that employees comply with such work rules.

In developing training programs, employers should follow best practices such as those provided by OSHA in *Resource for Development and Delivery of Training to Workers* [2021]. This publication carries guidance tailored to occupational safety training programs such as:

- Characteristics of sound training programs,
- Best practices for training adults,
- Principles of adult education, and
- Program design, delivery, and evaluation elements.

Training should be provided in the language(s) and at literacy level(s) that workers will understand.

After the fatal incident, the employer revised its policies regarding machine guarding and provided employees training on the policies as well as enhanced training regarding safe machine operation, machine guarding, and ensuring the use of machine safety features.

Also, the employer implemented a task specialization system that segregated production area workers into those qualified to work on the presses from those who were not. Qualified workers were first required to complete applicable safety training and gain experience working with the presses and then were singularly identified by an orange work uniform. The purpose of the task specialization system was to help identify and communicate which workers were qualified to work on the presses.

#### **DISCLAIMER**

Mention of any company or product does not constitute endorsement by Kentucky FACE and NIOSH. In addition, citations to websites external to Kentucky FACE and NIOSH do not constitute NIOSH endorsement of the sponsoring organizations or their programs or products. Furthermore, Kentucky FACE and NIOSH are not responsible for the content of these websites. All web addresses referenced in this document were accessible as of the publication date.

#### **REFERENCES**

- ANSI. (2023). [ANSI B11.2-2013 \(R2020\) Safety Requirements for Hydraulic and Pneumatic Power Presses](#). American National Standards Institute.
- Mori. (2023). [Hydraulic Fineblanking Press FB-FDEBH](#). Mori Iron Works Co., LTD.
- Misumi (2023). [Press Dies Tutorial](#). Misumi Technical Tutorial.
- NIOSH (2013). [Prevention Through Design](#). National Institute for Occupational Safety and Health.



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OSHA. (2015). [OSHA 3824: Resource for Development and Delivery of Training to Workers](#). Occupational Safety and Health Administration.

OSHA. (2011). [29 CFR 1910.147: The Control of Hazardous Energy \(Lockout/Tagout\)](#). Occupational Safety and Health Administration.

OSHA. (2013). [29 CFR 1910.217 – Mechanical Power Presses](#). Occupational Safety and Health Administration.

### **INVESTIGATOR INFORMATION**

This investigation was conducted and report prepared by Dr. David Stumbo, OHST, CSP.

### **PROGRAM FUNDING**

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