



The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces  
through safety and health research



# Machine Operator Struck and Killed by Cutting Head of Feller Buncher Machine—North Carolina

FACE 9507

## SUMMARY

A 33-year-old male machine operator (the victim) was replacing two hydraulic hoses on a feller buncher machine when he was struck and killed by the machine's cutting head. The victim was part of a 13-person crew that was performing logging operations in a rural area when the incident occurred. On the day before the incident, two hydraulic hoses which partially controlled the raising and lowering of the cutting head were ruptured by a tree limb and the machine was left idle until it could be repaired the following day. At 9:15 a.m. on the day of the incident, the victim tapped the plugs and capped the hydraulic connections, added hydraulic fluid, and raised the cutting head. He positioned himself between the frame of the machine and the raised cutting head to install new hoses. He then uncapped one of the connections which released fluid under pressure from one of the two hydraulic cylinders. When the pressure released, the cutting head suddenly dropped to its traveling position, which was approximately 2 inches from the machine's frame. The victim was struck in the chest and pinned against the frame of the machine. A co-worker who was walking toward the machine observed the cutting head strike the victim. The co-worker mounted the machine and tried to raise the cutting head, but was unable to do so because of the uncapped hydraulic connection. At that time the employer arrived at the incident scene and assisted the co-worker by using a second machine to lift the cutting head and extract the victim. The emergency medical service was called; it arrived shortly thereafter and transported the victim to the local hospital, where he was pronounced dead at 10:15 a.m. by the attending physician. NIOSH investigators concluded that, to prevent similar occurrences, employers should:

- **ensure that machine maintenance and repair procedures are strictly adhered to develop, implement and enforce a written safety program which includes, but is not limited to, worker training in hazard identification, avoidance and abatement**
- **designate a competent person to conduct regular safety inspections**
- **encourage workers to actively participate in workplace safety.**

## INTRODUCTION

On January 11, 1995, a 33-year-old male machine operator (the victim) was killed after being struck in the chest by the cutting head of a feller buncher machine. On January 30, 1995, officials of the North Carolina Occupational Safety and Health Administration (NCOSHA) notified the Division of Safety Research (DSR) of this fatality, and requested technical assistance. On March 16, 1995, a DSR safety specialist conducted an investigation of this incident. The investigator reviewed the incident with the NCOSHA compliance officer assigned to the case. The medical examiner's report and photographs of the incident site were obtained during the investigation.

The employer in this incident was a logging company that had been in business for 37 years and employed 13 workers, two of whom operated feller buncher machines similar to the machine the victim operated. The employer did not have a written safety program, but reportedly conducted safety talks on a regular basis. The victim was part owner of the company and had about 13 years experience in the logging business. This was the first fatality the company had experienced.

## INVESTIGATION

The logging company was clear cutting a 50-acre tract of land for which the timber rights had been leased from a private owner. This tract of soft and hardwood timber was being felled, limbed, cut to length, graded, sorted and transported to different processing plants. The timber was being harvested by a crew of 13 people, which included 6 machine operators [3 skidders, 2 feller bunchers, and 1 loader], 5 tractor-trailer operators, and 2 persons working on the ground topping and limbing trees. The terrain was a gentle, rolling mountain slope with less than a 5-percent grade, and environmental conditions were favorable. The incident occurred within 3 days of completion of the timbering job.

On the day before the incident, the workers arrived early in the morning and commenced their normal work duties. The victim felled trees until he discovered that a tree limb had ruptured two hydraulic hoses on the right cylinder of the feller buncher he was operating (Figure). This is a self-propelled machine designed to fell standing trees and arrange them in bunches on the ground. The hydraulically operated machine was equipped with a 4.5-foot-diameter metal cutting head, which weighed about 3,000 pounds. The victim determined the machine could no longer be operated without first retapping the plugs and capping the connections (to retain the hydraulic fluid), then fabricating and installing new hoses. The mechanical breakdown occurred late in the afternoon and he decided to install the hoses the following day.

On the day of the incident, the victim picked up the equipment needed to tap the plugs and cap the two connections on the hydraulic cylinder. After tapping the plugs he capped the two connections to prevent any further hydraulic fluid loss. He connected pressure fittings to the hydraulic hoses at the maintenance vehicle and proceeded back to the feller buncher. At about 9:15 a.m. he arrived at the feller buncher with the new hoses and first added additional hydraulic fluid to the hydraulic unit, then started the machine and raised the cutting head. For reasons unknown, the victim, without first blocking the cutting head from movement, positioned himself between the cutting head and the frame of the machine. He uncapped the hydraulic connection and when the pressure/fluid released, the cutting head suddenly dropped to its traveling position, which was about 2 inches from the machine's frame. The cutting head struck the victim in the chest and pinned him against the machine's frame. At about the same time, a co-worker was walking toward the feller buncher and observed the cutting head strike the victim. The co-worker mounted the machine and tried to raise the cutting head, but was unable to do so because of the uncapped hydraulic connection. At that time the employer arrived at the incident scene and assisted the co-worker by using a second machine to lift the cutting head and extract the victim. The emergency medical service was called; it arrived shortly thereafter and transported the victim to the local hospital, where he was pronounced dead at 10:15 a.m. by the attending physician.

## CAUSE OF DEATH

The medical examiner's report listed the cause of death as crushing injuries of the chest.

## RECOMMENDATIONS/DISCUSSION

**Recommendation #1: Employers should ensure that machine maintenance and repair procedures are strictly adhered to.**

Discussion: The logging company's procedure for working on the cutting head of the feller buncher machine was communicated verbally to workers. The preferred procedure was to use a lowboy trailer to support the cutting head, shut the machine down, leaving the machine in gear with the brake on, and chock the wheels before any maintenance or repairs are started. The alternate procedure was to cut a tree and set the cutting head on the stump, then follow the same routine as above. Strict adherence to this procedure may have prevented this incident from occurring.

**Recommendation #2: Employers should develop, implement and enforce a written safety program which includes, but is not limited to, worker training in hazard identification, avoidance and abatement.**

Discussion: The victim was struck and killed by the cutting head of a feller buncher machine when the victim uncapped a hydraulic connection without first blocking the cutting head against motion. Employers should evaluate tasks performed by workers; identify all potential hazards; and then develop, implement, and enforce written safe work procedures addressing these issues. Although verbal procedures existed for the maintenance of the feller buncher, they were not followed. The safety program should include, at a minimum, worker training in hazard identification, and the avoidance and abatement of these hazards.

**Recommendation #3: Employers should designate a competent person to conduct regular safety inspections.**

Discussion: Conducting regular safety inspections of all logging tasks by a competent person has the authority to take prompt corrective measures to eliminate them. will help ensure that established company safety procedures are being followed. Additionally, scheduled and unscheduled safety inspections of mechanized tree-felling worksites clearly demonstrate that the employer is committed to the safety program and to the prevention of occupational injury.

**Recommendation #4: Employers should encourage workers to actively participate in workplace safety.**

Discussion: Employers should encourage all workers to actively participate in workplace safety and ensure that all workers understand the role they play in the prevention of occupational injury. In this instance, the victim positioned himself between the raised cutting head of the feller buncher machine and uncapped a hydraulic cylinder connection without first blocking the cutting head against motion. With the cylinder uncapped, pressure was released, causing the cutting head to suddenly drop to its traveling position, pinning and crushing the victim to death against the frame of the machine. Increased worker participation in safe work practices will aid in the prevention of occupational injury.

***Figure. Feller Buncher Machine.  
FACE 95-07.***

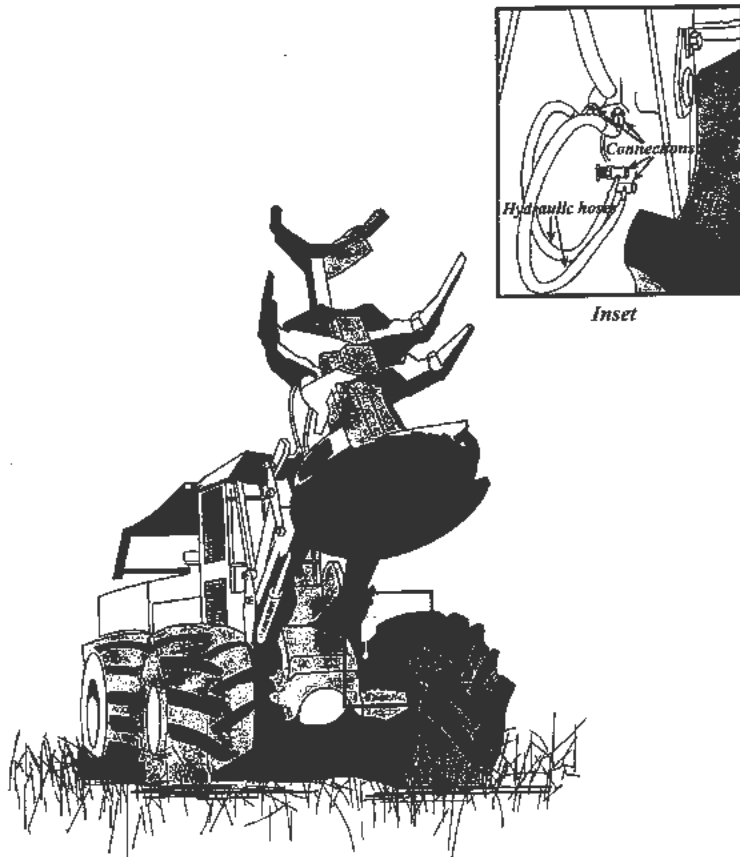


Figure.

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