

INCIDENT SUMMARY

Incident type: Struck/crushed by falling upper beam
Weather conditions/Time of day: Inside/4:00 PM
Type of operation: Raw cotton processing
Size of work crew: 5
Worksite inspection conducted: Yes
Competent safety monitoring on site: Not Applicable
Safety and Health program in effect: Yes
Training and education for workers: Yes
Job title of deceased worker: Cotton Press Operator
Age/Sex of deceased worker: 25/Female
Time on job: Not Available
Time at task: Not Available
Time employed/classification (FT/PT/Temporary): Not Available
Language spoken: Not Available
Union/Non-Union: Non-Union

BRIEF DESCRIPTION OF INCIDENT

Five workers were operating a Continental Moss-Gordin Model 730 cotton press. During normal operation, two columns ("tie rods") broke when the press was exerting pressure to compact a cotton bale. The pressure launched the top pieces of the broken columns and the upper beam into the air. The 6,255 pound upper beam landed on and crushed one worker, killing her. Two other workers were hospitalized with injuries.

Likely Cause of Incident

- **Metal fatigue**—when metal is damaged (e.g., cracks) as a result of repeated cycles of stress—within the press columns, failure may occur (see Figures 1 and 2).
- Fatigue failure occurs as a result of the number of cycles of normal operation and the amount of force applied. Often referred to as "cyclic stress failure," metal pieces subjected to a high number of repetitive cycles at moderate force are at risk of fatigue failure. Pieces subjected to a higher amount of cyclic force will fail after a lower number of cycles.
- The press was manufactured in 1974 and had produced over 500,000 bales during its production life.
- The fractures appeared inside of the columns (see Figure 3, next page) and the columns were behind welded coverings; therefore, inspection of these locations was not possible without taking the press apart.

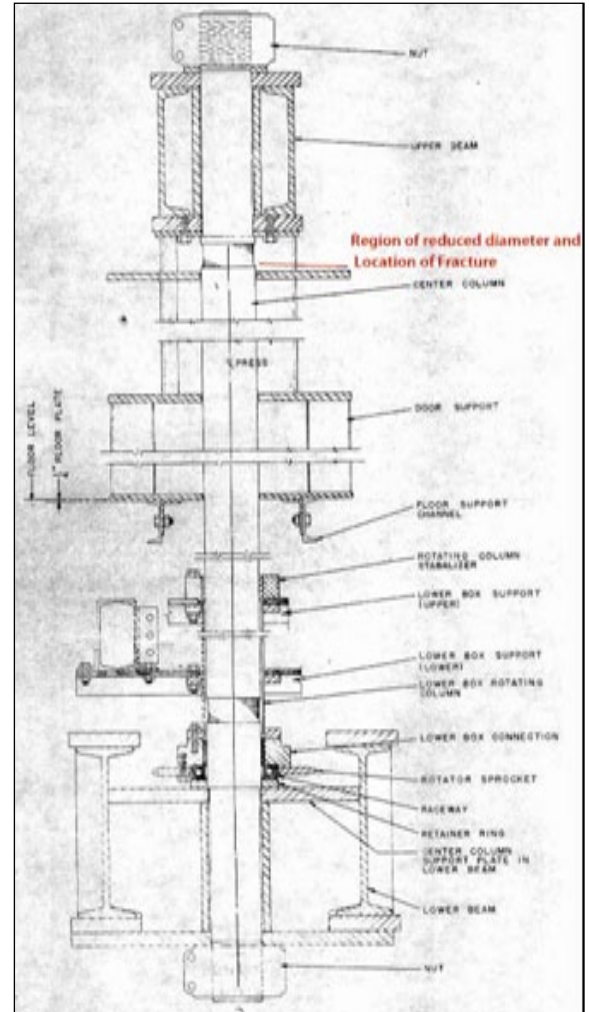


Figure 1: Diagram of cotton press center column, showing location of fracture.



Figure 2: Portion of column separated from the main column in the incident. It is about 34 inches long and 7 inches in diameter.

Note: The described case was selected as being representative of improper work practices which likely contributed to a fatality from an incident. The incident prevention recommendations do not necessarily reflect the outcome of any legal aspects of this case. OSHA encourages your company or organization to duplicate and share this information.

INCIDENT PREVENTION

To prevent future incidents, if you have a Continental Moss-Gordin Model 730 cotton press or a similar press:

- Set up a maintenance schedule so that this type of equipment receives regular mechanical checks by a qualified person. This will likely involve taking apart and inspecting/testing the columns on the cotton press for metal fatigue.
- Look for visible signs of fatigue failure. Signs could include a slight lengthening of the column or a rotation in place due to loosening of the nuts restraining the top bar of the press.
- Check columns on the cotton press for metal fatigue using a *non-destructive testing method* such as ultrasonic testing and dye penetration testing.
- Replace columns which show any indication of metal fatigue.
- Do not allow workers to operate a cotton press until a qualified person first determines that there are no defects in the press columns.

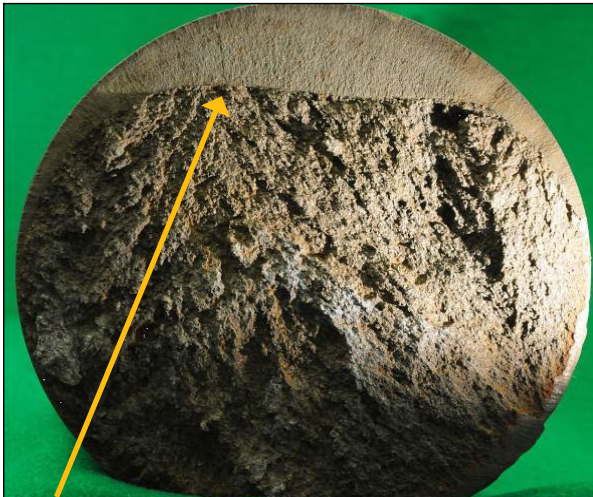


Figure 3: Arrow showing where the failure point started at the top section of the center column.

You Have a Voice in the Workplace

The *Occupational Safety and Health Act of 1970* affords workers the right to a safe workplace (see OSHA's **Worker Rights** page, www.osha.gov/workers.html). Workers also have the right to file a complaint with OSHA if they believe that there are either violations of OSHA standards or serious workplace hazards.

How OSHA Can Help

For questions or to get information or advice, to report an emergency, report a fatality or catastrophe, or to file a confidential complaint, contact your nearest OSHA office, visit www.osha.gov or call our toll-free number at 1-800-321-OSHA (6742), TTY 1-877-889-5627. It's confidential.

More Information

OSHA standards and regulations:
www.osha.gov/law-regs.html

OSHA publications:
www.osha.gov/publications

OSHA-approved state plans:
www.osha.gov/dcsp/osp

OSHA's free On-site Consultation services:
www.osha.gov/consultation

Training resources:
www.osha.gov/dte

Compliance Assistance services:
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