

## SAFETY ALERT 03-S-1

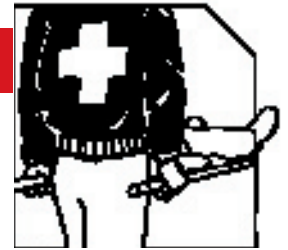


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## KNUCKLEBOOM LOADER'S MAIN BOOM BREAKS

February 2003

**BACKGROUND:** A knuckleboom loader operator was processing average-sized, tree-length hardwood stems into logs at a woodyard.

**PERSONAL CHARACTERISTICS:** The experienced operator, in his mid-40s, was considered fully trained, and he pro-actively supported the company safety program.

**UNSAFE ACT OR CONDITION:** There were over 8,000 accumulated operating hours on the loader, and there were undetected hairline cracks on the loader's main boom.

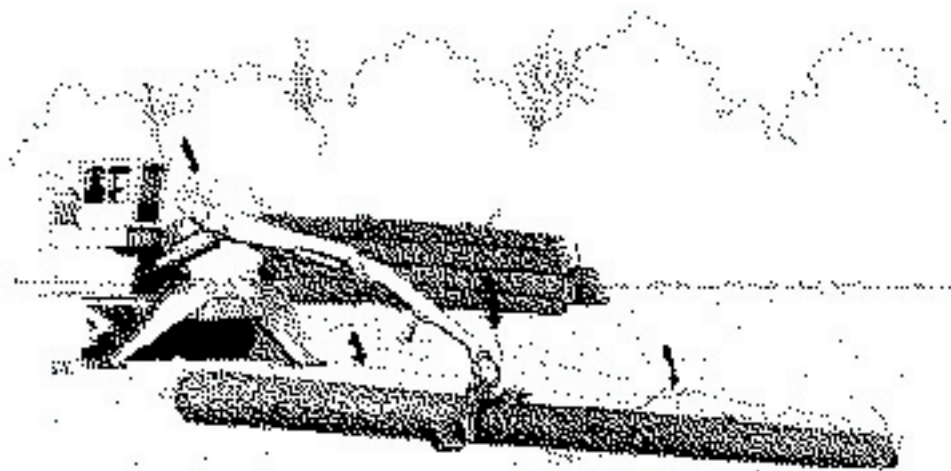
**ACCIDENT:** The main boom of the loader fractured. The boom and the suspended hardwood stem to fell to the ground. The fracture was in line with the previously existing, undetected hairline cracks just ahead of the pin near the base of the main boom. Hairline cracks (which showed oxidation) affected approximately 20% of the exterior dimensions of the main boom box beam. The cracks were located on each top corner and under the hydraulic lines on top of the main boom box beam. Oddly, the corners of the box beam showed oxidation, but the top center of the box beam showed fresh fracture.

**INJURY/PROPERTY DAMAGE:** No injuries or additional property damage occurred as a result of this incident.

**RECOMMENDATIONS FOR CORRECTION:** A regularly scheduled, detailed inspection of high stress areas on the booms of knuckleboom loaders should be included as a part of every safety and maintenance program. In addition, standard operating procedures should address the possibility that frequent handling of logs at the extreme reach of the loader boom may eventually cause metal fatigue in the structure of the boom.

Ensure that knuckleboom loaders are equipped with working front window guards, in the event that a boom or hydraulic failure causes the log to crash back against the window.

Reviewed by:  
Rick Meyer  
Appalachian Technical  
Division Forester



*Please follow equipment manufacturers' recommendations for safe operation and maintenance procedures.*



This Safety Alert analyzes an injury in accordance with the chain of events represented by the five dominoes at left. Pioneer industrial safety experts H. W. Heinrich and Alfred Lateiner developed this accident analysis system to provide a graphic sense of how injuries can be avoided. Their methodology has been accepted by safety professionals worldwide.

## **SAFETY MEETING REPORT**

Date: \_\_\_\_\_ Company: \_\_\_\_\_

Topic(s) Discussed: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Names of Employees Attending:

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_____	_____
_____	_____
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_____	_____

Conducted By: \_\_\_\_\_

Signed: \_\_\_\_\_

Comments / Recommendations:

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