

# Hydraulic Pressure Release

## WHAT HAPPENED

An employee maintenance fitter was removing a metal hydraulic pipe from a CAT365 Excavator boom after it was found to have a small hole in the pipe leading to loss of hydraulic fluid. The intention was to carry out a welded repair to the pipe and for this to be done safely it needed to be removed from the machine.

The employee had turned the machine off and placed the boom on the ground before proceeding to release pressure from the hydraulic system by removing the hydraulic tank cap and moving the lever for the boom. The IP then undid the flexible pipe from one end of the metal pipe which led to the release of some hydraulic oil but not under pressure. When releasing the final bolt at the other end of the metal pipe mounting there was a release of pressure causing the pipe to come away with force. As the IP was holding a ring spanner on the bolt the force was sufficient to cause a fracture to his wrist as the pipe was forced away from the mounting.

It was subsequently found that a check valve within the housing prevented release of pressure when

the flexible hose was disconnected but the stored pressure was released on removing the metal pipe from its mounting. Furthermore there is a standard procedure for releasing all stored energy from the hydraulic system that is known to the manufacturers and their agent's experienced fitters but may not be known by "In House" fitters who do not work on mobile plant as often.



Metal Pipe Removed

## LEARNING POINTS / ACTIONS TAKEN

Modern mobile plant often has quite complex hydraulic pressure systems with numerous circuits. In the case of machines with lifting capabilities there will be check valves and other safety features fitted to prevent any failure in the system leading to a falling boom or jib. As machines have become more complex it is unlikely that the training of "in company" fitters has kept pace with the modifications seen in recent years and they are therefore unlikely to be able to know how to safely isolate energy sources on all different types of machine.

The Fitter had no formal training in isolating and working on the particular piece of mobile plant:

- Are competent, experienced specialists used for complex and high risk tasks?
- Are specialists consulted before attempting any “in house” work to ensure prior knowledge of all the risks?
- Have contractors engaged to work on mobile plant been assessed as competent?

A Worksafe (Point of Work Risk Assessment) and Permit to Work had been completed prior to the task:

- Are tasks that require a Permit to Work identified?
- Is Worksafe used before all new or unfamiliar tasks?
- Are Safe Systems of Work in place for all higher risk tasks?

The risk of a hydraulic oil leak and potential for a pressurised release had been identified in the pre task assessment:

- Are all employees aware of the hazards and potential risks from working on hydraulic systems?
- Are only competent persons permitted to undertake such work?

It was thought that the machine had been isolated and all stored energy released:

- Are isolation points clearly identified?
- Are all potential sources of energy considered

# The importance of energy control when isolating equipment?



Mounting Point of Metal Pipe

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**LOCATION:**  
**ACTIVITY:**  
**SUB ACTIVITY:**

**OTHER**  
**MAINTENANCE & HOUSEKEEPING**  
**N/A**

**ALERT STATUS:** Normal  
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