

# Safety Alert

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FORESTS



## Repair and Maintenance of high-pressure hydraulic hoses



### Background

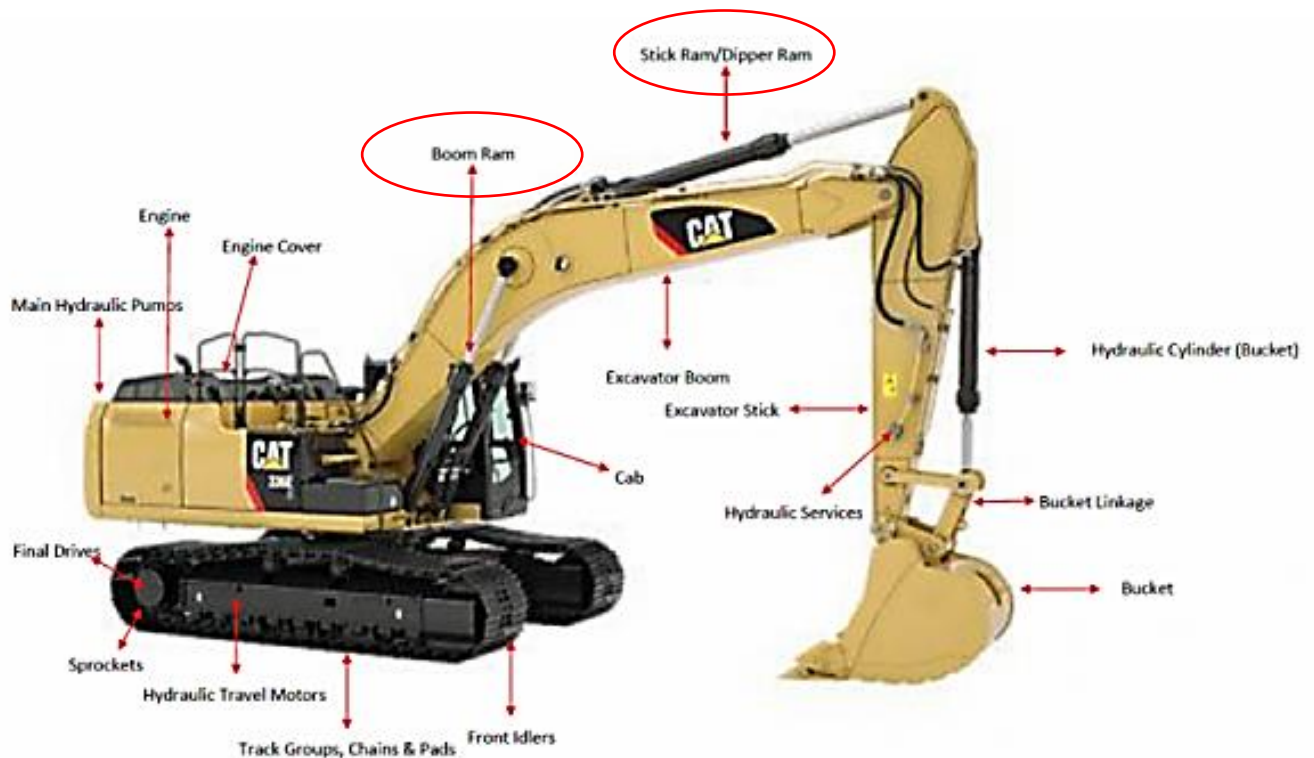
- The foreman of a logging crew replaced a broken hose on the processor head. Before replacing the hose, he positioned the machine in a safe area. He switched the machine off, lifted the hydraulic bail arm up and worked the boom controls to release any residual pressure.
- He proceeded to replace the broken hose at the processing head, and then replaced a leaking hose just below the dipper arm. There was no hydraulic pressure in the hose below the dipper arm.
- The foreman then remembered that there was a leak on the hose that feeds the stick/dipper ram on the boom. He decided to replace this o-ring while the machine was down.
- He assumed that there would be no pressure in the system, seeing as he had just replaced two hydraulic hoses with no issues.
- As he started loosening the hose that feeds the stick/dipper ram, the pressure released and it blew the hose off. Fortunately, he had turned his head away and only the side of his face was covered with some residual oil. The force of the pressure release flung the end of the hose coupling in to his shoulder, knocking him off balance.

### Investigation Findings

- The foreman made the assumption that the entire hydraulic system was depressurized. In reality, the pressure had only been released below the dipper arm, due to the broken hose on the processor head.
- Further conversations with service technicians revealed that the reason that the ram was still under pressure was due to the load check valve situated in the valve bank. The load check valve had not been disengaged, and there would have been around 5000psi of hydraulic pressure in the ram when the hose was loosened.
- That is more than enough pressure to cause serious injury or death.

## Load check valves

- These are located in the valve bank and their function is to maintain the hydraulic pressure in the stick/dipper ram and main lifting ram's.
- There is no consistent advice as to the best method to release the load check valve. Each make of machine is different, but they all have a load check valve or pressure regulator.



## Ask yourself the following questions

### PREPARATION

- Do you know how to safely release the hydraulic pressure on your various machines?

### COMMUNICATION

- Have you communicated, instructed and/or trained your employees in the safe method of releasing hydraulic pressure on your machines?

### SKILLS / RESOURCES

- Do you know which components must be removed by an expert?
- Do you know which repair tasks should only be done by an expert?

### PPE

- Do you and your employees, undertaking maintenance work involving hydraulic hoses under pressure, wear gloves, safety glasses, face shields or marguard shields?

**If you have any doubt when working with high pressure hydraulic hoses or components  
STOP! THINK! CHECK!**