

# EXCAVATION EQUIPMENT DAMAGE

## DESCRIPTION:

During extremely cold temperatures (-34 C), an excavator was damaged when the pipe arm attachment impacted the cab.

A mobile mechanic was required to get the excavator running, and it took 1.5 hours to start the equipment due to the extreme cold. The operator had let the excavator run for approximately 20 to 30 minutes, and then began the pre-use inspection and functionality test. As the boom was lifted during part of the functionality test, the pipe arm attachment started curling inward on its own towards the cab of the excavator. It impacted the top of the excavator cab damaging the skylight, skylight latch and cracking the front windshield.

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**The pipe arm impacted the cab**

**CAUSE OF INJURY OR LOSS:**

Hydraulic fluid in the excavator had thickened due to the drop in temperature, freezing the components in the oil, which impacted the response of the pipe arm attachment.

**CONTRIBUTING FACTORS:**

There was not enough warm-up time to allow for adequate fluid circulation in the extremely cold weather conditions, and the operator did not engage the secondary engine shut-off switch.

**CORRECTIVE ACTIONS:**

- When ambient temperatures fall below -18 C, an extended warm-up/fluid circulation time should be implemented to compensate for potentially thickened fluids
- The company has implemented an emergency engine shut down procedure
- The manufacturer suggested that a pipe arm attachment should not be used in temperatures below -30 C
- Check with manufacturer for appropriate fluids and temperature ratings