

SAFETY ALERT – Skidder Brake Failure

Logging Skidders – Loss of Braking When Engine Stalls or is Switched Off

INCIDENT SUMMARY

A skidder was travelling on a **25° slope** when it ran out of fuel.

The operator stopped the machine and applied the **park brake** while keeping pressure on the **service brake**. The brakes initially held the machine in place while an excavator went to collect a fuel tank.

A short time later, the operator noticed the skidder beginning to **creep forward**, indicating the brakes were losing their ability to hold the machine. Recognising the increasing risk, the operator safely exited the skidder.

Shortly afterwards, the **service brakes failed completely**, and the **park brake could no longer hold the machine**. The unattended skidder rolled down the track, went over the edge of the cutover, overturned multiple times, and came to rest at the bottom of the slope.

It was noted that the blade and grapple could not be lowered once the engine failed. In some models this can be done through the computer screen immediately. In this model it was a difficult process. It was also noted that this may not have helped hold the skidder in place.



During the investigation it was noted that several forestry industry incidents internationally have highlighted a critical hazard involving hydrostatic-drive skidders where the primary braking system becomes ineffective when the engine stalls or is shut down.

In a British Columbia forestry incident, a Tigercat 620D skidder stalled while travelling on a skid trail. The machine immediately lost its hydrostatic braking capability and began rolling downhill. The emergency braking system failed to stop the machine due to a faulty brake accumulator. The skidder travelled approximately 100 metres downhill, crossed a road and entered standing timber before coming to rest. The operator sustained minor injuries.

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WHY THIS HAPPENS

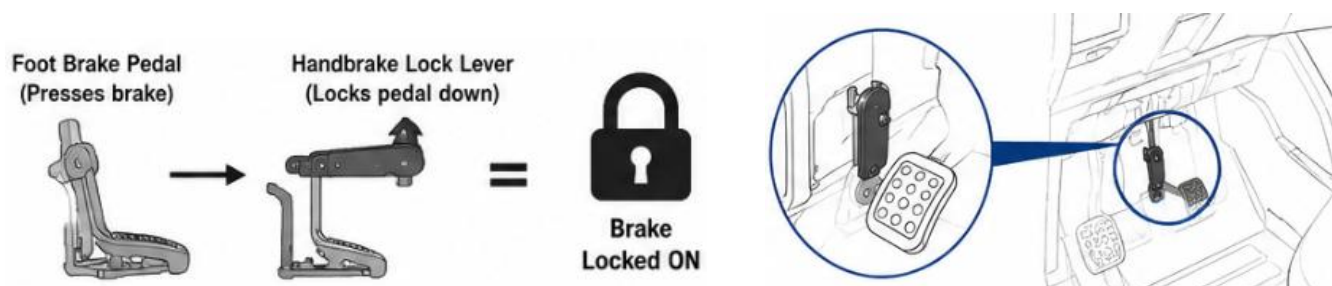
Many modern hydrostatic transmission skidders use an accumulator as the primary braking system. When the engine stalls, accumulator pressure is lost, the skidder then relies on the parking brake to hold the skidder in place

Investigations into both incidents found:

- Service braking relied on the accumulator to hold the machine on a slope.
- Service brake only functioned while the engine is running and slowly loses pressure.
- The park brake was engaged but not designed to hold skidder on a slope
- The operator was unaware that the accumulator would lose pressure and service brake would then fail.
At this point the park brake alone would no longer have capability to hold machine

REQUIRED CONTROLS

- **Operators:** Complete daily brake checks, confirm the park brake holds, test the emergency brake where safe, check fuel level before starting work and during the workday, report defects immediately, and never operate a skidder with known or suspected brake faults.
- **Maintenance personnel:** Inspect brake components, test accumulator pressure, verify service, park, and emergency brake performance, document results, and investigate recurring engine stalls or pressure-loss issues before the machine returns to work.
- **Supervisors:** Confirm operators understand the braking system and emergency procedure for the specific skidder they are using. Review slope conditions, escape routes, communication, and exclusion zones before work starts.
- **Other forestry equipment:** Review machines with hydrostatic, hydraulic, or accumulator-assisted braking systems to identify whether similar loss-of-control risks exist if the engine stalls or hydraulic pressure is lost. Apply equivalent inspection, testing, training, and emergency controls where required.
- **Look at engineered options:** There are brake locks that can be put in place to hold the service brake in place while the operator gets out safely if needed in an emergency.



SAFETY MESSAGE: *If the engine stops, the brakes you are relying on may disappear with it. Understand your skidder's braking system, test it regularly, and never assume a parked machine will remain stationary on a slope.*