

SAFETY ALERT

Tether Rope Failures in Winch-Assisted Harvesting



Alert

Several recent incidents have involved tether (winch-assist) rope failures during steep slope harvesting operations. While these incidents did not result in serious injury, they highlight the potential consequences of rope failure and the importance of robust rope management systems.

Industry discussions following these events indicate that rope inspection, maintenance, replacement practices, record keeping, and understanding of discard criteria may not be consistent across all operations. Financial pressures may also create incentives to maximise rope life, however safety-critical components must remain fit for purpose at all times.

POTENTIAL CONSEQUENCES

- Machine instability or rollover
- Equipment damage
- Serious injury or fatality
- Unplanned downtime and production loss

Safety must come before cost

Tether ropes operate in a demanding environment involving high loads, continuous use, abrasion, repeated bending, and occasional shock loading. Rope condition can deteriorate rapidly and may not always be obvious without systematic inspection.

There is no universal rope replacement interval that applies to all winch-assist operations. Wire rope manufacturers and industry specialists recommend assessing rope condition against recognised inspection and discard standards rather than relying solely on operating hours. ISO 4309:2017 provides internationally recognised criteria for wire rope inspection and discard.

CONTRACTOR RESPONSIBILITIES

Contractors should:

- Inspect ropes, connectors, anchor systems and rigging before use and after any shock-loading event.
- Conduct periodic documented inspections in accordance with ISO 4309:2017 and the Winch-Assisted Harvesting Best Practice Guide.
- Maintain a rigging register and records of inspections, maintenance, incidents, repairs and replacements.
- Monitor rope condition throughout its service life and ensure deterioration trends are identified early.
- Remove from service any rope or component that meets established discard criteria.
- Ensure operators and mechanics are trained to identify rope defects, damage and deterioration.
- Retain evidence that inspections, replacements and maintenance activities are being completed.

Forest Owner / Forest Manager Responsibilities

Forest owners and managers should:

- Ensure harvesting contracts adequately recognise the cost of maintaining and replacing safety-critical tethering components.
- Verify that contractors have documented rope management, inspection and maintenance systems in place.
- Seek assurance that tether ropes and associated equipment are inspected and managed in accordance with industry best practice.
- Support a safety culture where rope replacement decisions are driven by condition and risk rather than production or cost pressures.

Industry feedback indicates that modern winch-assist systems are undertaking increasingly demanding work, including higher utilisation rates and greater use in extraction operations. This reinforces the need for realistic budgeting and planning for rope replacement as a normal operational cost.

Manufacturer Responsibilities

Winch-assist equipment manufacturers and suppliers should:

- Provide clear guidance on inspection requirements and maintenance procedures.
- Clearly communicate applicable standards, including rope inspection and discard criteria.
- Notify users of safety-critical updates, inspections or recertification requirements.
- Support contractors with technical advice relating to rope condition assessment and safe system operation.

Reporting and Learning

Every tether rope failure represents an opportunity for industry learning.

Contractors and forest managers are encouraged to investigate rope failures, determine contributing factors, and share lessons learned through established reporting channels. Greater reporting will help improve industry understanding of rope performance, deterioration mechanisms and emerging risks.

Key Message

A documented rope management system is essential. Rope replacement decisions should be based on inspection findings, rope condition, service history and recognised discard criteria, not solely on operating hours.

Safety Message

**A tether system is only as strong as its weakest component.
If in doubt, take it out.**

See required actions below.



Action required

- 1.** Review all tether rope inspection and maintenance records.
- 2.** Verify rigging registers are current and complete.
- 3.** Check that inspection and discard processes align with ISO 4309:2017 and the Winch-Assisted Harvesting Best Practice Guide.
- 4.** Review any rope that has experienced shock loading, abnormal loading or damage.
- 5.** Remove from service any rope or component that reaches discard criteria or has an unknown history.
- 6.** Brief crews on rope inspection requirements and reporting expectations.