

Com90 Automated Load Securement System Study Update

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This report provides an operational update to Info Note 2025 N 3 (Shetty et. al. 2025) following continued use of the Exte Com90 automated load securement system in BC log hauling operations. The update focuses on operational performance, maintenance costs, system reliability, economics and user feedback.

Background

The Com90 system was evaluated for its potential to reduce driver injuries associated with manual log load securement while improving operational efficiency. Load securement remains one of the most physically demanding tasks in log hauling. Between 2018-2023, 41 overexertion injury claims related to load securement were reported, costing more than \$2.1 million in claims. Updated data from 2024-2026 shows 65 reported overexertion injury claims, indicating the issue remains significant.

The Com90 system replaces traditional wrappers with hydraulically actuated lashing arms and retractable stakes to automate load securement.

Operational Performance Update

The COM90 system operated under temperatures from -30°C to +30°C in snow, mud, slush, dust, and freezing rain conditions. During the study period, the truck accumulated 123,000 km and 3,023 engine hours.

The system remained reliable and easy to operate, with drivers reporting reduced physical strain and improved

load securement consistency. A hydraulic pump upgrade improved securement speed; however, no additional productivity gains were observed. Average trips covered by Com90 truck per day decreased from three trips/day to two trips/day due to a route change which resulted in a longer cycle time.

Load binding issues persisted, particularly during winter operations, where the loader had to occasionally grab the sides of logs from the top of the load to ease off the pressure on the stakes while the Com90 was retracting the stakes to create appropriate tension on the log bundle. This loader assistance remained necessary approximately 95% of the time for truck bundles and 80–85% for trailer bundles. Performance continued to vary depending on stake position and load type. With the use of 2.9 m bunks and current design improvements, it is expected the load binding issue will be eliminated.

Maintenance Update

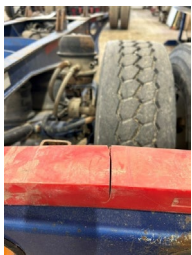
Maintenance activities identified both routine wear and BC-specific durability concerns. Approximately one hydraulic hose required replacement every three months (eight hoses were replaced during the reporting period). The hydraulic pump was also upgraded from 38 L/min @ 2176 psi to 53 L/min @ 2850 psi which improved system performance.

Additional maintenance included:

- Re-welding of hydraulic oil tanks
- Replacement of three lashing arms

- Replacement of all 24 wooden bushings with Teflon bushings
- Reinforcement/replacement of bunk tie-downs and U-plates

Friction pads are supposed to be replaced during annual maintenance; therefore, approximately 80% of friction pads were replaced since commissioning. Figure 1 presents some of the damages observed during the trial period.



a) Lashing arm crack



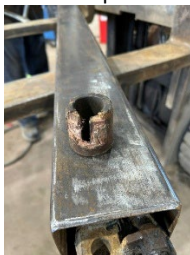
b) Broken bunk securement clamp



c) Stake bent due to loader interaction



d) Hook wear



e) Bushing wear

Figure 1. Operational wear and tear of Com90 components

User Feedback Update

Drivers reported a positive overall experience, particularly regarding reduced physical workload and improved mill-yard efficiency. Key limitations identified included:

- Requirement for operator patience
- Continued reliance on loader assistance

Fleet operators reported no injuries associated with the system during the study period. Feedback also

highlighted the need for larger hydraulic cylinders and stronger bunk clamps to better withstand BC operating conditions.

Economics Update

Estimated purchase cost for a six-bunk COM90 system is:

- ~\$120,000 for 2.6 m bunks
- ~\$125,000 for 2.9 m bunks (Exte has agreed to manufacture 2.9 m bunk Com90, which was not an option during the beginning of the study)

Hydraulic pump upgrades cost approximately \$5,000. The total system installation cost was estimated at \$8,500. During nearly two years of operation, system costs broke down as follows:

- General Maintenance: Approximately \$2,500.
- Routine Hose Replacements: Extra costs of \$200 to \$300 per hose every three months.
- Stakes Replacement: Roughly \$14,200 for three stakes due to equipment damage.

Note: Stake replacements were accounted for in a previous evaluation with spare part costs included in the initial purchase cost.

Updated cost-benefit analysis for the 2.9 m bunk configuration (Figure 2) indicates a slight improvement in economic performance and reduced payback period compared to earlier evaluations based on a 2.6 m bunk. This is due to a small increase in payload for the 2.9m bunks.

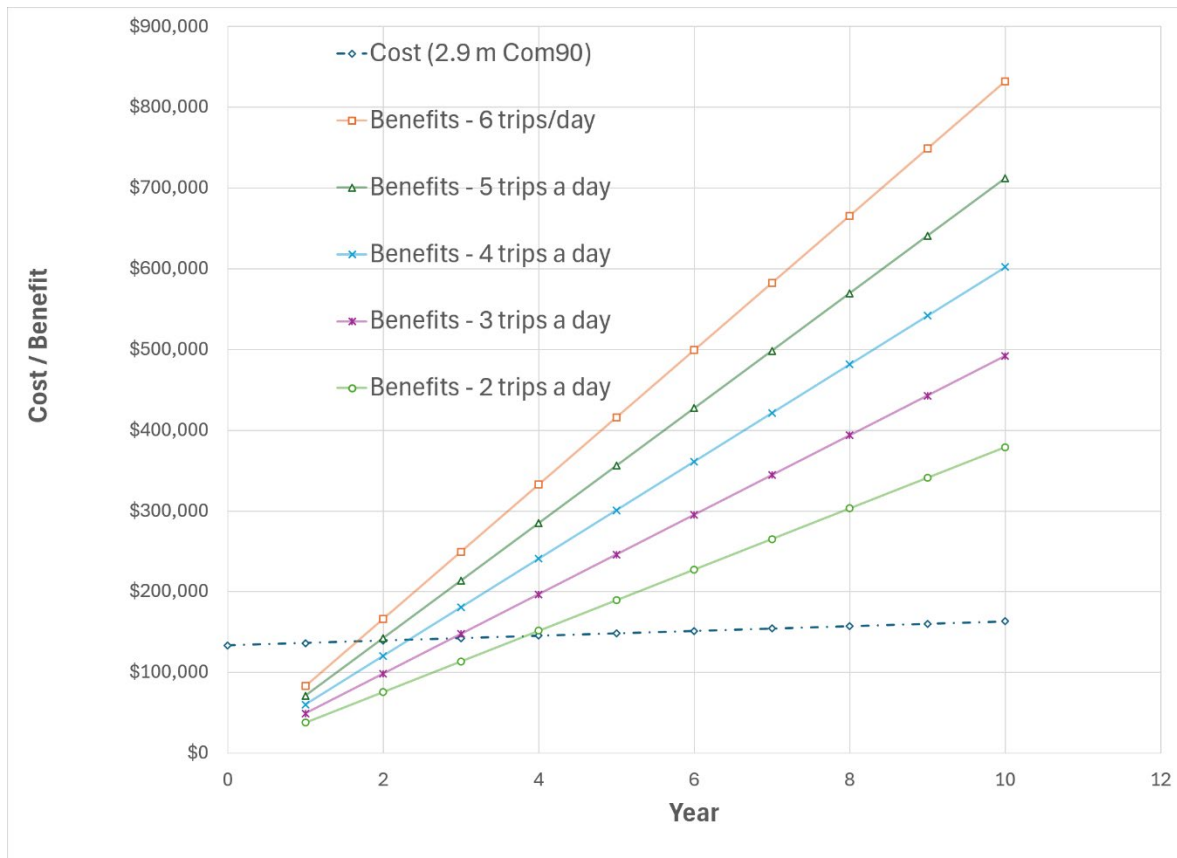


Figure 2. Revised cost benefits for Com90 with six 2.9 m width bunks

In conclusion

The COM90 system has demonstrated potential to improve safety and reduce manual workload in log hauling operations. The system has performed reliably in harsh environmental conditions and has been positively received by operators.

However, some limitations remain:

- Continued dependence on loader assistance
- Durability of high-stress components

Key Takeaways

The key takeaways from this study are:

- Ergonomic and safety benefits achieved
- Operational efficiency improved after hydraulic pump upgrade

- Further engineering refinement would be beneficial, particularly for:
 - Hydraulic system capacity
 - Structural durability of components

Recommendations

Further optimization of the Com90 design is recommended for BC operating conditions, particularly regarding hydraulic performance and component durability.

Fleets should follow CVSA recommended inspection practices for automated load securement systems (CVSA 2025).

For more information

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References

Shetty M. Meierhofer D. And K. Pedersen. 2025. Evaluation of Exte Com90 Automated Systems to Reduce or Eliminate Log Load Securement Related Injuries. FPInnovations Info Note 03.

CVSA 2025. Exte Com90 Load Securement Inspection Bulletin