



HAUL TRUCKS UPGRADED AND AUTONOMOUS READY WITH REDUCED DOWNTIME

**\$800,000+
COST
SAVING**

12
HOUR AVERAGE
TURNAROUND

24
MACHINES
COMPLETED

Primec

THE CHALLENGE

Automation is an increasing and important function within the mining industry - improving productivity and reducing risks to personnel.

According to research by Professor John Meech, Professor of Mining and Engineering at University of British Columbia, benefits of autonomous haulage include:

- Increase of 15 - 20 percent in output;
- Decrease of 10 to 15 percent in fuel consumption;
- Decrease in tire wear by 5 to 15 percent;
- Increase in truck up-time by 10 to 20 percent;
- Decrease in maintenance by 8 percent.

However, retrofitting machinery with autonomous componentry can come at a high price.

In addition to labour, the loss of production due to machinery downtime and transport off site to complete works can add up significantly.

Our client manages a large fleet of haul trucks within the Bowen Basin region and required modifications to become autonomous ready. The fleet of 24 Cat haul trucks required retrofitting front wheels hubs with upgraded sensors and breathers.

They required an efficient solution, with a high level of innovation, and coordination to ensure minimum downtime and meet OEM requirements.



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THE SOLUTION

Primec offered an innovative, onsite solution, recognising the financial impacts of downtime for the fleet of machines and transport costs to complete works offsite.

To enable the hub modifications to be completed while wheels remained attached required a creative solution. The fabrication of custom drilling support bracing, wheel end bearing retainer block and debris extraction to engineered design ensured the machine remained accessible for mine site maintenance to complete regular servicing work.

Automation enabling components consisted of both wheel speed sensors and breathers within the hub assembly. Our safe work instruction incorporated the technical knowledge to allow the fitters to accurately drill and re-threading wheel hubs while in-situ. This method ensured hold points were maintained to prevent contamination with the use of the debris extractor design to encapsulate the drilling entry point to the spindle cavity.

This resulted in a significant saving for our client and the mine site operations. Reduction on overall machine downtime saves approximately \$4,000 per hour.

Based on other quotes provided to customer, Primec was able to save the customer over \$800,000 on labour costs alone and eliminated wheel removal and transport costs that are traditionally associated with this type of task.

On average, a complete machine automation ready hub modification was completed within a 12-hour shift.



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