



Smart Solutions

Case study: Product optimization on wheel loaders

Application: *Surface – All ore*

Location: *Midwestern United States*

Products featured: *P&H wheel loaders*

Challenge: Production optimization

Customer wanted to **improve the loading operations and increase productivity** using P&H wheel loaders

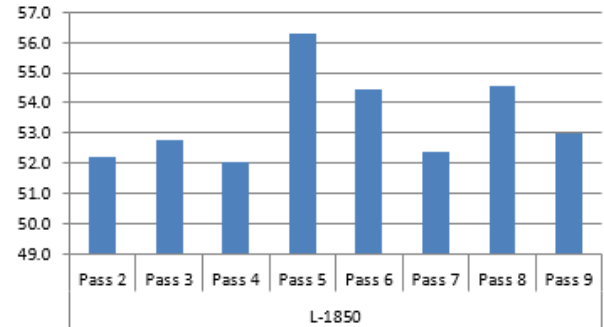
Machine data was reporting longer cycle times and truck passes

Customer recognized there was room for improvement and sought a solution

Contributing factors:

- Longer truck spot times
- Longer truck wait times
- Increased number of passes

Average Cycle Time



	Benchmark L-1850 Cycle Breakdown						Column Trends
	Reverse Empty	Forward Empty	Dig	Reverse Loaded	Forward Loaded	Dump	
Pass 2	8.4	9.1	8.3	9.9	6.3	4.9	
Pass 3	8.8	7.4	7.3	9.7	5.1	6.6	
Pass 4	7.7	6.4	6.9	10.1	5.2	5.4	
Pass 5	8.8	7.0	8.4	9.3	6.2	5.9	
Pass 6	7.9	6.3	8.4	10.2	5.4	5.9	
Pass 7	8.7	7.3	7.5	10.1	4.9	7.1	
Pass 8	9.4	8.4	7.8	10.0	7.6	8.4	
Pass 9	10.6	8.0	7.2	9.4	9.0	11.0	
Sparkline Trends							

Engagement process: Working toward a solution

Working directly with the customer, our sales, application engineering and service teams were able to record and analyze the machines' productivity for better analysis

Application engineering conducted a field study using truck scales and JoySmart Solutions data

Video and drone testing were conducted to record the operations



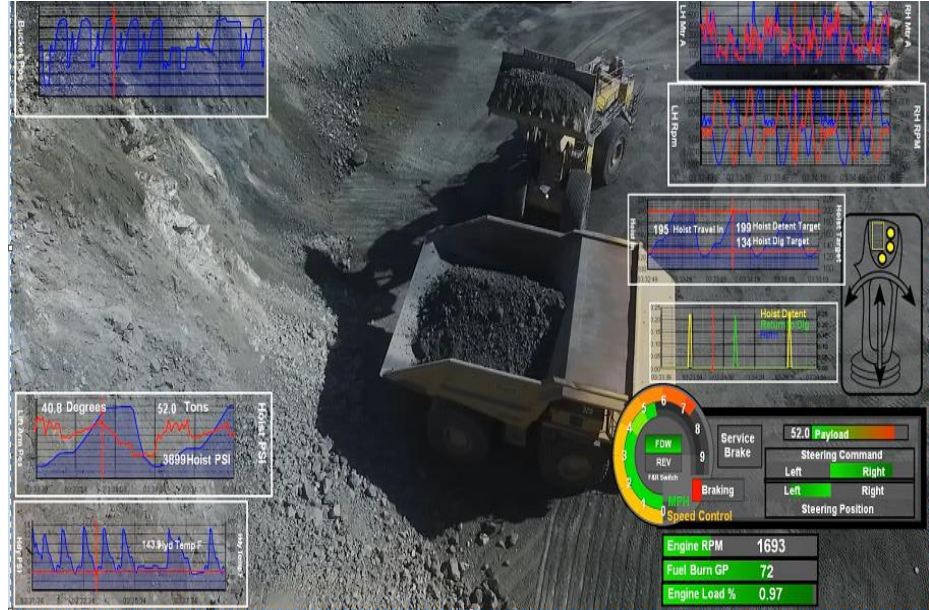
Solution: Improve cycle time and truck loading

Komatsu teams overlaid the drone footage with machine data to better understand the issues.

Using this information, we worked with operations to:

- Reduce the number of passes
- Increase fill factor
- Reduce cycle time for each pass

Smart Solutions teams provided **daily and weekly reports to track and improve operations**



Results:

Reduced the total number of passes from 9 to 6, a **20% improvement**

Reduced cycle time by **10%**

