

EXCAVATOR HOIST CYLINDER AND BUCKET PIN MONITORING- KOMATSU PC7000

The customer, operating a fleet of Komatsu PC 7000 excavators, faced **repeated premature failures of hoist cylinders and bucket pins**. The maintenance team suspected these failures may be due to insufficient greasing but had no way to determine how much grease was being applied to each point.

By installing Endpoint MP2s, the **GreaseBoss system immediately identified a critical issue with the lube system pump, preventing a catastrophic failure of over \$10,000,000**. This installation has successfully ensured proper lubrication and provided visibility to maintenance teams over the automatic lubricator system.

CONTEXT

Across the customer's Komatsu PC7000 excavator fleet, they **had experienced repeated failures of hoist cylinders and bucket pins that affected asset availability and productivity**.

The maintenance team was uncertain about the amount of grease being delivered to the bucket pins, leading them to double their injectors within the H Link. Despite these efforts, **concerns remained about the quantity and reliability of grease delivery**.



Endpoint MP2 monitoring bucket pins (LHS & RHS) – mounted on silicon magnets on the stick

SOLUTIONS PROVIDED

To provide the customer with visibility and certainty, **Endpoint MP2s were installed within the snake pit and the H Link** to monitor the hoist cylinders and bucket pins.

The HME Gateway was installed in the electrical cabinet and uses a 4G SIM to provide connectivity to the GreaseBoss Cloud.

This installation, using high-strength magnets and silicon has provided a quick and easy setup and has proven very successful in providing accurate monitoring and rapid ROI and proof of concept to the customer.



Endpoint MP2 monitoring hoist cylinders – mounted on silicon magnets in the "snake pit"

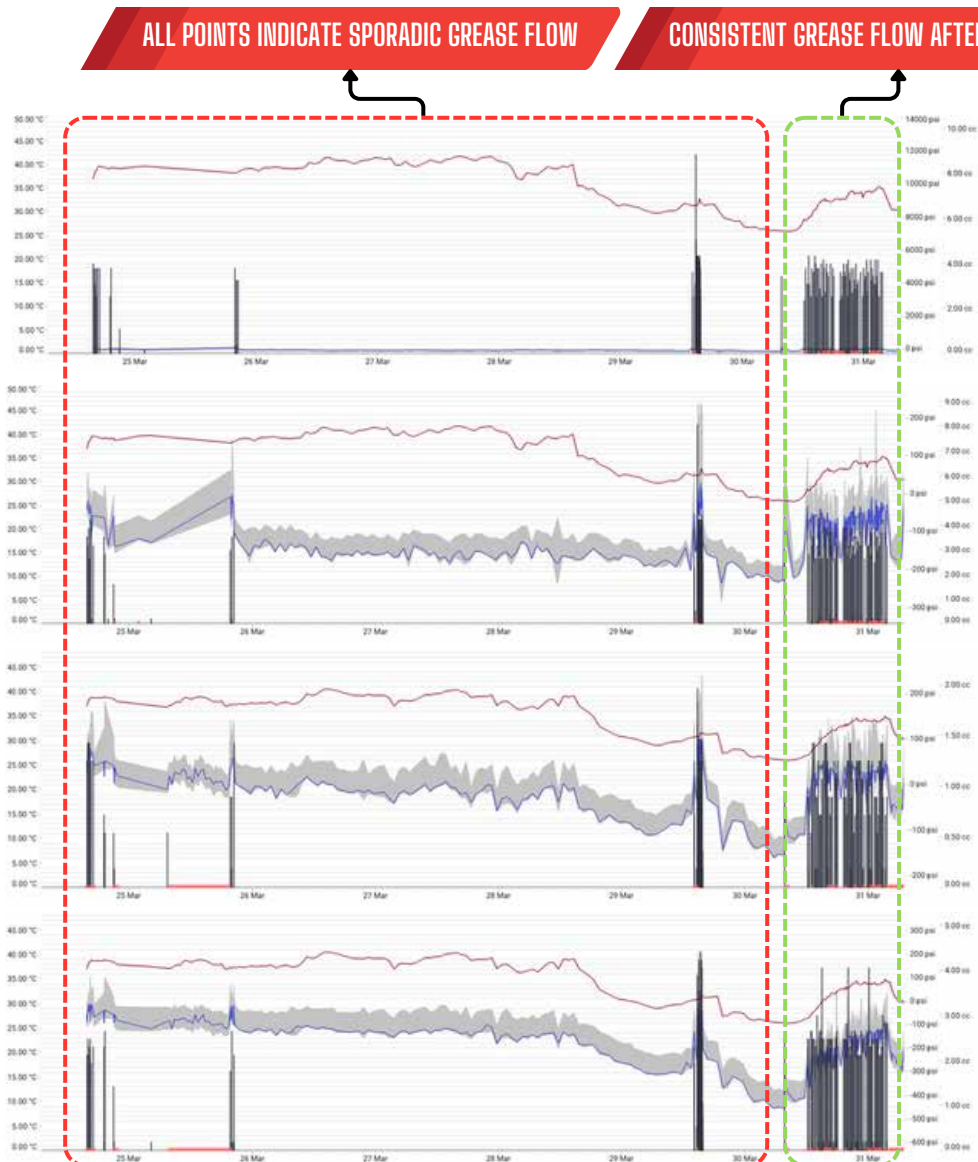
FINDINGS

GREASEBOSS DATA REVEALED CRITICAL ISSUE WITH LUBE SYSTEM PUMP

Four days after installation, a data review was conducted with the customer. **The data immediately highlighted a critical issue with the lube system pump feeding the hoist cylinders.**

The two Endpoint MP2's monitoring the four hoist cylinder points revealed that **all four points exhibited the same pattern: intermittent pump activity followed by long periods with no grease flow.** This indicated a pump issue, which was confirmed when the customer discovered **a faulty cable harness providing electrical signals to the pump.**

ALL FOUR POINTS ON PUMP SYSTEM SHOWED IDENTICAL SPORADIC GREASE FLOW - INDICATING A PUMP FAILURE

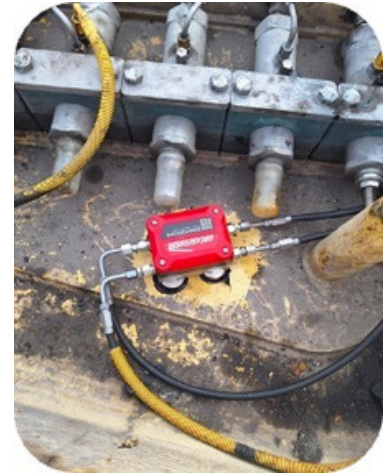


VERIFICATION OF GREASE FLOW VOLUMES AND PRESSURE TO H-LINK

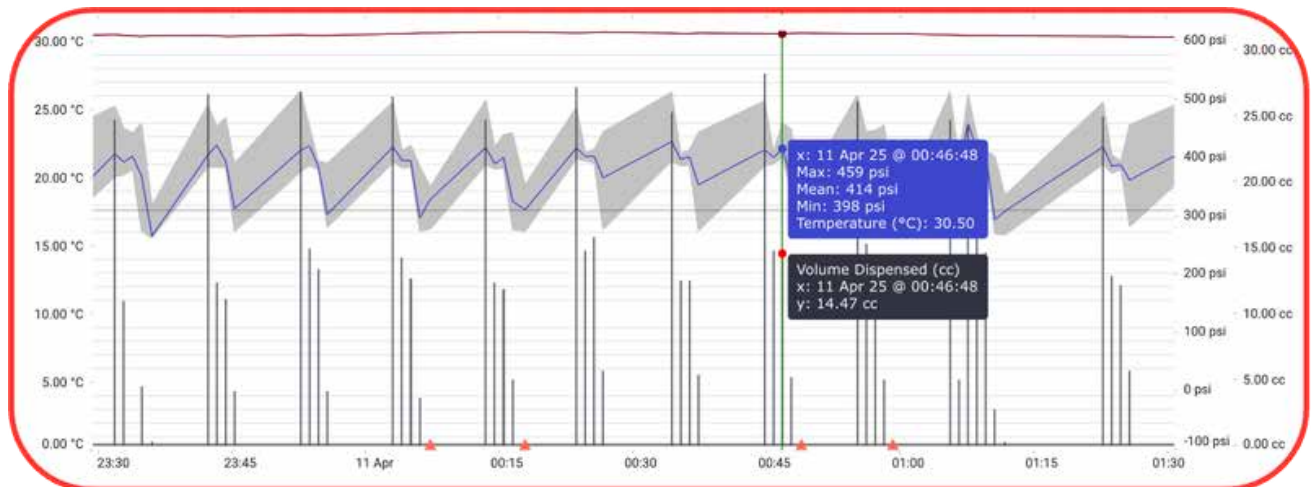
As the maintenance team had concerns over whether the bucket pins were receiving any grease, the raw data provided maintenance teams with certainty over the performance and functionality of the automatic lubricator system.

The **Greaseboss Monitoring system provided detailed information on the grease volume flow and the system pressure at the H-link pins** to the maintenance team.

Raw data analysis enables full visibility. Every bar shows the volume of grease delivered over a 60 second period. The data shows that current injector setup delivers grease to pins over a 4 minute period at approximately 400 psi.



Endpoint MP2 monitoring H-link points – Mounted on silicon magnets in the H-link



MEASURABLE OUTCOMES

IMMEDIATELY DETECTED A CRITICAL PUMP ISSUE - PREVENTING CATASTROPHIC EQUIPMENT FAILURE

The **data from the GreaseBoss system provided and instant ROI for the customer, highlighting the presence of a major pump system failure** (a failing cable harness providing electrical signals to the grease pump) that was not otherwise detected in the OEM grease pump monitoring system.

If this failure had not been detected, the result would have been a catastrophic failure and/or accelerated wear of multiple, high value components all fed from the same grease pump (ie. boom foot, hoist cylinder, slew ring and swing box).

PREVENTED CATASTROPHIC EQUIPMENT FAILURE, SAVING OVER \$10,000,000

PROVIDED VISIBILITY AND CERTAINTY TO MAINTENANCE TEAMS OVER GREASE VOLUME APPLICATION

The maintenance team on site now have the certainty and visibility over the grease volume application at critical grease points on the bucket pins and H-link. This provides ongoing monitoring and alerting to ensure these points are correctly greased and provides key data for the maintenance team as they conduct Root Cause Analysis (RCA's) to investigate any future equipment failures.