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Position Paper

Carbon impact assessment of renovation and reconditioning solutions as alternatives to new equipment.

Summary

In a world grappling with increasingly urgent environmental challenges and a growing demand for efficiency, BIA Group distinguishes itself with innovative and sustainable solutions tailored specifically for the mining, quarrying, and industrial sectors. BIA offers equipment renovation and reconditioning services that significantly reduce carbon footprints while meeting clients' operational requirements and optimizing Total Cost of Ownership (TCO).

In collaboration with the consulting firm D-Carbonize, BIA conducted a study to assess the relevance of these renovation and reconditioning solutions. The study accurately measured carbon emission savings by comparing these methods with the CO_2 impact of acquiring new equipment or components.

For instance, renovating (or overhauling) a Komatsu HD605 dump truck can reduce CO_2 emissions by up to 92% compared to purchasing new equipment, saving 241 tons of CO_2.

Similarly, reconditioning critical components such as differentials and final drives results in an average carbon footprint reduction of 64%, while maintaining optimal performance and life expectancy.

These benefits extend beyond environmental impact. By prolonging equipment lifespans, BIA provides tangible economic advantages for its clients, including significant reductions in operating costs and optimized maintenance cycles.

Flexible financing solutions further enhance these strategic choices, strengthening companies' competitiveness while aligning them with global sustainable development goals. This approach fosters a more responsible extractive industry, promoting both the circular economy and qualified local employment.

By combining innovation, performance, and sustainability, BIA Group is transforming its sectors in a sustainable manner.

Full renovation reduces CO_2 emissions by up to 92% compared to new equipment

92%

Remanufactured components (Komatsu Reman certified) lower CO_2 emissions by 47%

47%

Rebuilt

BIA offers a comprehensive range of rebuild services through our Component Rebuild Centers (CRC). This enables us to provide our customers with local solutions close to their sites, ensuring fast and cost-effective service without compromising on quality.

Reman

Komatsu's Reman Exchange Program offers remanufactured components that meet original specifications in exchange for your used ones. This program provides immediate availability, an extended warranty, and a significant reduction in Total Cost of Ownership (TCO).

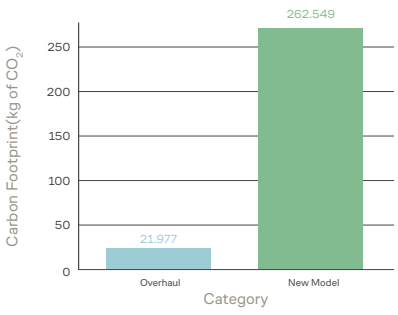
Overhaul of an HD605 Dump Truck

Case Study 1

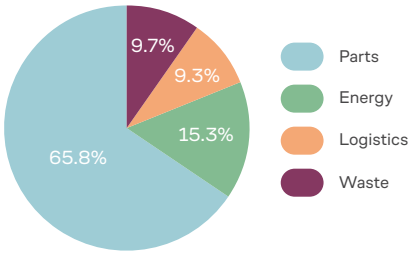
A comprehensive study was conducted on the complete overhaul and renovation of a Komatsu HD605 60-ton dump truck for a quarry operator in Belgium. By opting for a full renovation, BIA significantly reduces the carbon footprint. For instance, the renovation of this HD605 generates 21,977 kg of CO_2, compared to an estimated 262,549 kg for a new model, resulting in a savings of 241 tons of CO_2. This calculation encompasses spare parts management, remanufacturing of certain components by the manufacturer, energy resources, logistics, and industrial waste. To put this into perspective, the 241 tons of CO_2 saved are equivalent to 80,000 litres of fuel.

The cost of such an operation ranges between 55% and 65% of the price of a new machine, depending on the size of the equipment and its overall condition before the overhaul. This process extends the equipment's lifespan by at least as long as its initial service life.

Carbon Footprint Comparaison: Overhaul vs New Model



Carbon Footprint Breakdown



Rebuild and Remanufacture of HD785 & HD960E

Case Study 2

A second study focused on the carbon footprint of component reconditioning (rebuild) and replacement with remanufactured components by the manufacturer (Reman) compared to acquiring new component. This study was conducted in Zambia on a 100-ton payload HD785 dump truck and a 340-ton payload HD960E truck. The project was completed in one of our Component Rebuild Centres (CRC), adhering to the highest standards and certified by Komatsu.

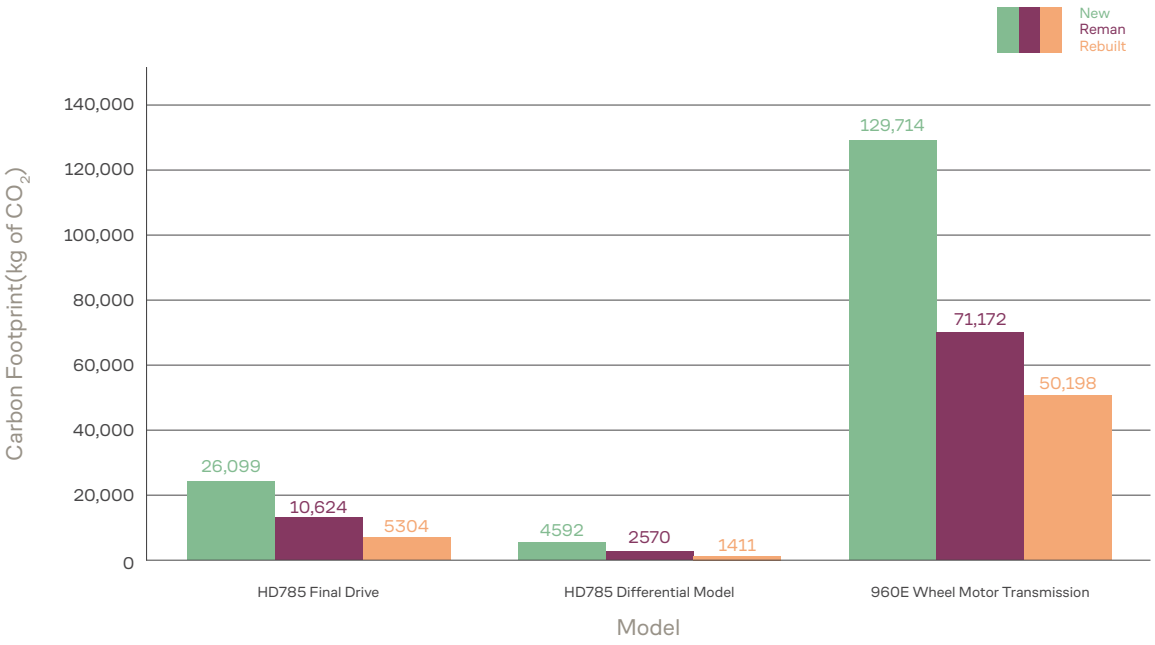
The study revealed that for critical components such as differentials, final drives, and transmission motors, reconditioning (Rebuild) and remanufacturing (Reman) solutions offer remarkable carbon footprint savings compared to new component:

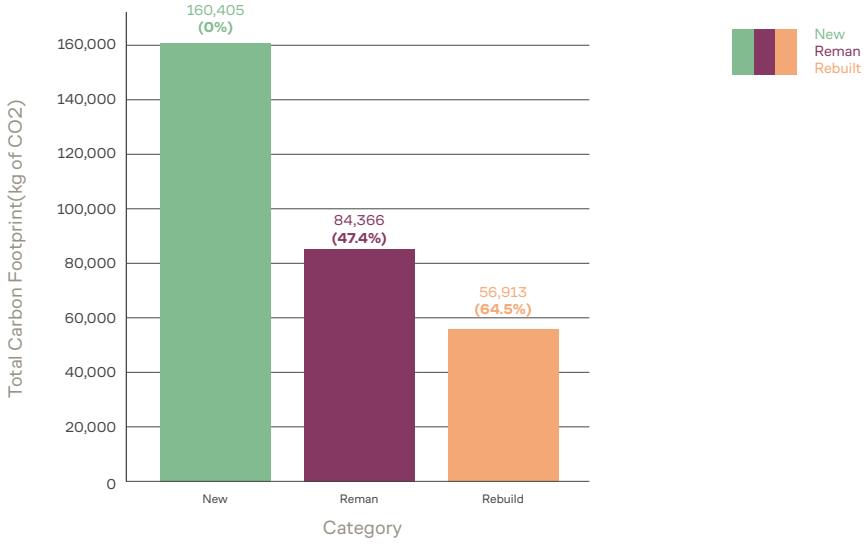
reconditioning achieves a reduction of **64%**

remanufacturing reduces total CO_2 emissions by **47%**

kgCO2e	Rebuild	Reman	New
Final Drive HD785-7	5304	10,624	26,099
Differential HD785-7	1411	2,570	4594
Wheel Motor Transmission HD785-7	50,198	71,172	129,714
Total	56,913	84,366	160,405

Rebuild compared to Reman:	-32%
Rebuild compared to New:	-64%
Reman compared to New:	-47%





Client Benefits

1. Operation Cost Reduction

Renovation solutions offer substantial savings, with costs 40% to 60% lower than purchasing new equipment. By extending the lifespan of equipment, these solutions also significantly reduce the total cost of ownership (TCO).

2. Operational Optimization

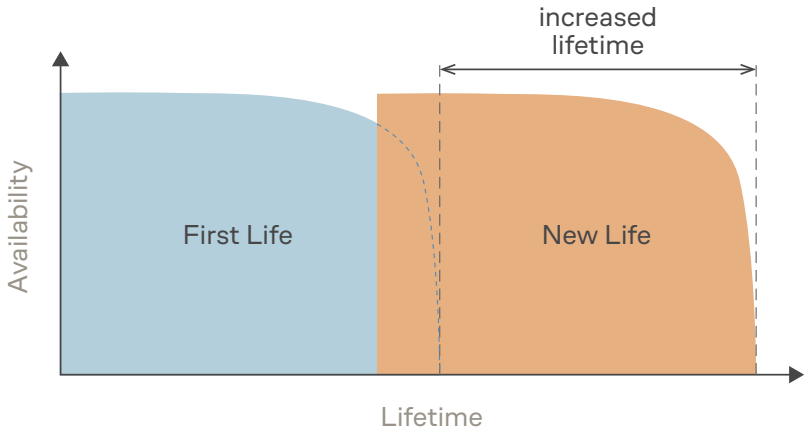
Proactive maintenance minimizes downtime and ensures higher operational availability. BIA's skilled technicians provide quick and effective responses, reducing the impact on productivity.

3. Financial Flexibility

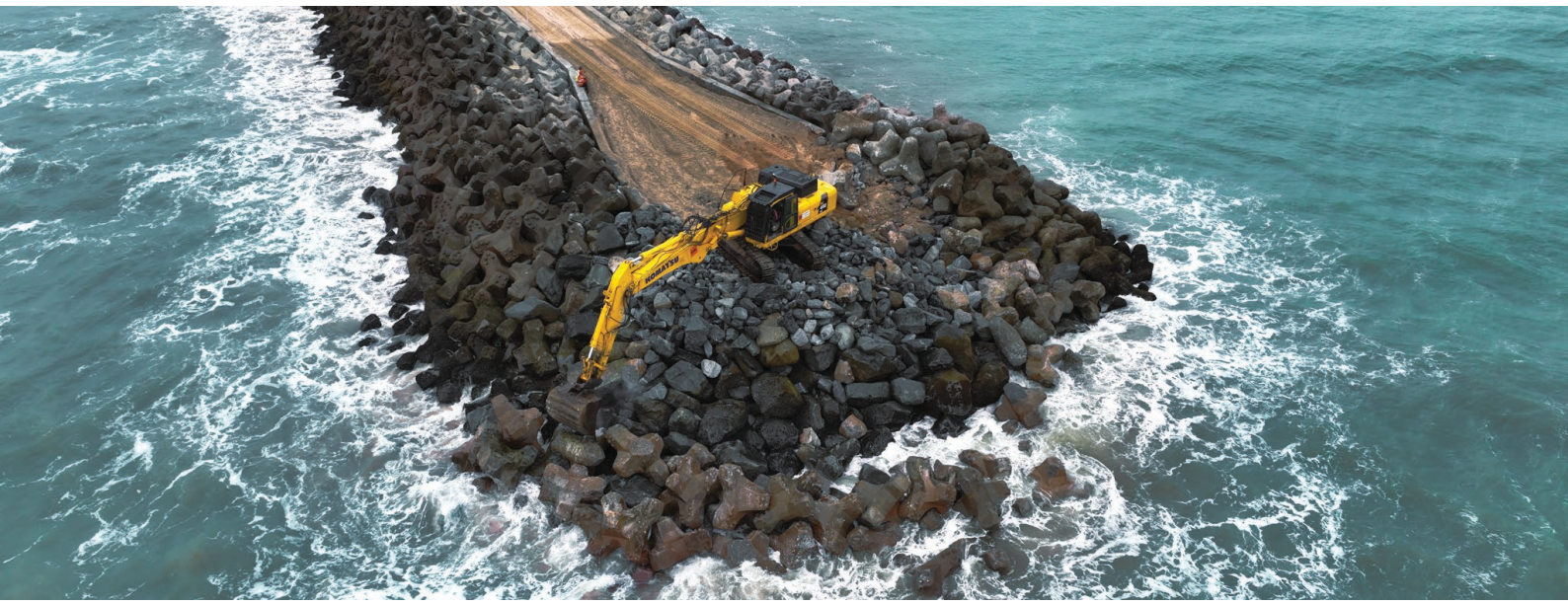
In partnership with Komatsu Finance, BIA offers flexible financing options, enabling companies to maintain cash flow while implementing sustainable solutions. (Option available in a selection of territories.)

4. Enhanced Competitiveness

Companies that adopt these solutions position themselves as sustainability leaders, attracting partnerships and stakeholders who prioritize Environmental, Social, and Governance (ESG) criteria.



Societal & environmental impact:
Toward a more sustainable extractive industry



Reducing the Environmental Footprint

BIA's solutions significantly cut CO_2 emissions and optimize the use of natural resources like fuel and oil. By promoting the reuse of materials and components, they align with a circular economy approach.

Supporting Local Employment

With over 700 locally trained technicians and engineers, BIA fosters skills development and economic growth in the regions where it operates.

Contributing to Sustainable Development Goals

BIA aligns with the United Nations Sustainable Development Goals (SDGs) by promoting responsible production, reducing climate impact, and investing in sustainable industrial infrastructure.

Since 2023, we have been working closely with our partner BIA to rebuild our HD605s. In less than two years, we have already reconditioned five trucks. The sixth is currently being overhauled. This program will enable us to considerably extend and even double the lifespan of our yellow machines.

From a financial point of view, the cost of rebuilding a truck represents between 50 and 60% of that of a new machine. However, Heidelberg Materials is also committed to the environmental aspect of this program. The reuse of certain components of the truck, notably the chassis, considerably reduces the raw materials required for its construction, not forgetting the reduction in CO2 emissions linked to the transport of these impressive parts.

The Rebuild program enables Heidelberg Materials to reduce its carbon footprint, which is perfectly in line with the Group's sustainability policy.

Lieven Noël

Technical & Operations Manager
North Heidelberg Materials
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Conclusion

In conclusion, the renovation and reconditioning solutions offered by BIA Group present clients with a unique opportunity to optimize their operations while reducing costs and minimizing carbon footprints.

By extending the lifespan of their equipment, clients not only achieve a significant reduction in total cost of ownership (TCO) but also actively contribute to environmental sustainability. These initiatives enhance relationships with stakeholders by showcasing a commitment to a more responsible and sustainable industry.

BIA Group is dedicated to supporting its clients at every stage with customized solutions and local expertise. By prioritizing innovation, performance, and sustainability, we are shaping an industrial future where efficiency and responsibility go hand in hand.

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