

Komatsu strengths: Reman business

Komatsu conducts the Reman business worldwide. This business covers engines, transmissions, and other components that have been used at customer sites for a long period of time. These components are removed from equipment and remanufactured to make them equivalent to new components in quality and delivered back to the market. We have continued to strengthen this business related to circular economy, which has become an essential element of our component strategy taking advantage of in-house development and production of key components, which is one of our strengths.

■ Reman business operates in 22 locations in 11 countries around the world

Reman refers to *remanufacturing*. Through this business, we remove components from our construction and mining equipment used over a long period of time, then remanufacture these components at our Reman plants to make these components equivalent to new. We offer these products in a timely manner to customers whose equipment requires overhauls with disassembly, inspection and repair. Mining equipment is the main source of the Reman business. Since the equipment is used for 10 to 15 years after purchase, repairs, parts replacement, and overhauls are essential during the life cycle (lifetime operating hours) of the equipment. While the quality of Reman products are equivalent to new, we offer them at a lower price than new components. In this respect, our Reman business makes positive contribution both to helping customers reduce life cycle costs and reducing environmental impact through resource reuse, and thereby, Reman continues to grow as a circular business.

The Reman business model leverages the strengths of our in-house development and production of key components such as engines and transmissions. In-house development and production allow us to remanufacture components according to the original information of the development and manufacturing processes. This approach enables our Reman products to be competitive in terms of quality, delivery, and cost. We also feedback information on durability to our development divisions through checking disassembled components. This information is used for product development, quality and serviceability improvement.

The Komatsu Reman business began about 30 years ago, when we launched component remanufacturing operations close to customer sites in North America, Europe, Australia and Indonesia. In response to steadily

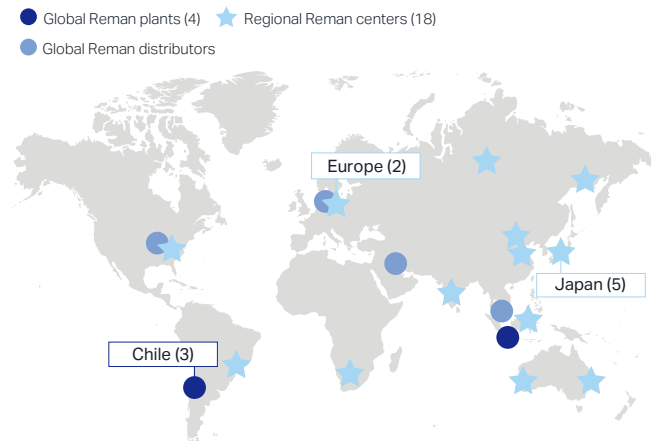
growing demand in various regions, we established full-scale Reman production bases in Latin America and Indonesia, which are the two major demand areas in the world, to establish a supply system for higher-quality Reman products and more convenient services. In 2005, Komatsu established Komatsu Reman Center Chile (KRCC) to manufacture Reman products for components of electric dump trucks made in the U.S.A. In 2007, we established PT Komatsu Reman Indonesia (KRI) (now Remanufacturing Department of PT Komatsu Indonesia) to manufacture Reman products for components of equipment made in Japan. In this way, we operate a global reman operation system with two major bases. As of 2024, the business has expanded to 22 locations in 11 countries around the world.

■ Achieving uniform quality across all locations through standardization

The Reman product supply process consists of an incoming inspection, disassembly, parts cleaning, parts inspection, salvage, assembly, performance inspection and painting. The global Reman operation manual provides common standards for evaluations on parts reuse and salvage methods. A system introduction for sharing Reman technical information and regular audits allows us to achieve the same quality for Reman products across all locations.

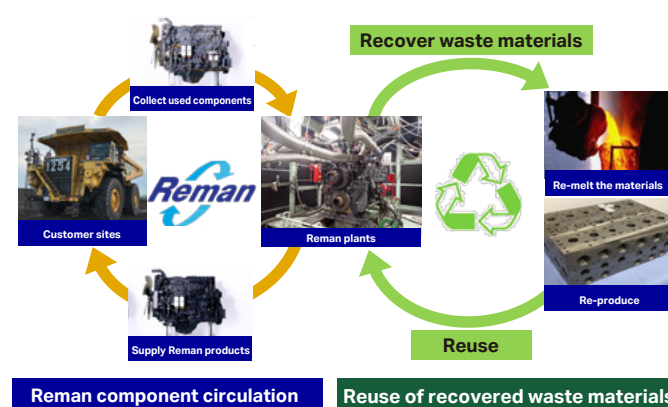
We also monitor detailed operating conditions of equipment using sensors mounted on components. This enables us to provide customers with highly convenient services such as parts delivery in a timely manner based on the data so we can conduct the prompt replacement of parts before equipment breaks down, rather than after the equipment fails to work properly.

Figure: The Komatsu global Reman operation system



- Global Reman bases in Indonesia and Chile where supply Reman products worldwide
- Regional Reman centers established in countries with large demand

Figure: The Reman process and CO₂ reduction through business



Through the reman business, components are reused, leading to zero waste and CO₂ reduction.

The Reman process (engines)

Engines are exposed to high-temperature, high-pressure combustion gases, which cause damage to the surfaces of internal parts and wear on shafts and other sliding parts. Without repair, this damage will result in engine performance degradation, cause noise and vibration, and, in worst cases, break down. Damaged areas can be restored to a like-new condition through methods such as spraying metal powder followed by a finishing process.



Left: Engine before Reman Right: Engine after Reman

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A Four-Win business for customers, global environment, distributors, and Komatsu

The Reman business is valuable not only to customers, but also to the global environment, distributors, and Komatsu.

- 1) Customers: By choosing Reman products, customers can reduce the life cycle cost of the equipment they own. Reman products also improves productivity by minimizing equipment downtime.
- 2) The global environment: The reuse of used components instead of disposal is estimated to reduce CO₂ by approximately 40,400 tons over the life cycle of a single unit of mining equipment. (Komatsu internal calculation)
- 3) Distributors: Distributors can increase earnings and strengthen customer contacts through new equipment sales through the appealing offerings of Reman products.
- 4) Komatsu: We help customers solve issues and maximize customer value, which is a deciding factor in repeat purchases. The Reman business is not only highly profitable, but also contributes to the improvement of product quality, since the data obtained from used components can be utilized for the development of future products.

Figure: The life cycle cost of mining equipment

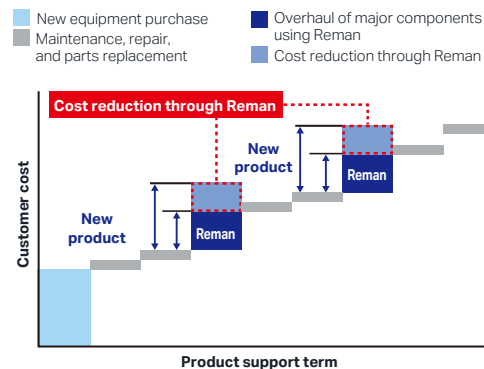
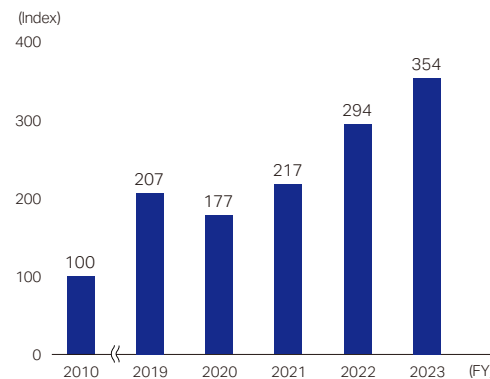


Figure: Trends of Reman transaction amount (FY2010=100; actual exchange rate)



Further growth through next-generation Reman products

Komatsu has engaged in reducing CO₂ from products by developing highly fuel-efficient products that include hybrid hydraulic excavators and diesel-electric trucks. Responding to the increasing population of this equipment, the Reman business expanded the product line-up in Japan in November 2023, including key components for hybrid hydraulic excavators such as capacitors and inverters. As a result, almost all key components developed and manufactured by Komatsu are Reman-compatible (including products sold only in certain regions). In conjunction with the future electrification of construction and mining equipment to achieve carbon neutrality, we must consider Reman support for batteries and other equipment. We hope to build a trove of technologies and explore the potential for new Reman businesses through collaboration with outside parties.

Message

The Reman business: Created to solve customer problems Aiming for evolution and higher growth



Naoyuki Sakurai

Executive Officer
President, Parts & Reman Promotion Division, Production Division

Mining equipment operates over extended periods of time in complex terrain and harsh operating environments. This type of equipment requires between one and three component overhauls over the approximately 10- to 15-year life cycle. These costs are not inexpensive. We began the Reman business in response to voices of customers to purchase remanufactured components with solid quality at reasonable prices and thereby reduce life cycle costs.

Reman business sales have tripled over the 13 years since 2010. This growth is due in part to increasing momentum behind sustainability in recent years. In addition to sales, profitability has also remained high. There is a risk of volatility in demand for new equipment depending on market conditions. However, the Reman business, as a part of aftermarket business, is less volatile to economic fluctuations or other factors, and contributes to generating stable earnings. Our current mid-term management plan calls for a 25% increase in Reman business sales (versus FY2021) by FY2024. By improving life cycle costs of customers through Reman offerings, Komatsu products themselves become more competitive, making customers to choose Komatsu again. For this reason, Reman has become an important business in the Komatsu management strategy.

With the arrival of the era of carbon neutrality and drastic changes in equipment components, including electrification, our Reman operations are required to establish new technologies to the component remanufacturing field. I am committed to advance our Reman business with sustainable growth contributing to Komatsu's entire business expansion from an aftermarket perspective.



In front of Reman products
(in the U.S.A, Mr. Sakurai is on the left)