

Feature- I : Excavators & Cranes

Technological Development for Construction Machinery

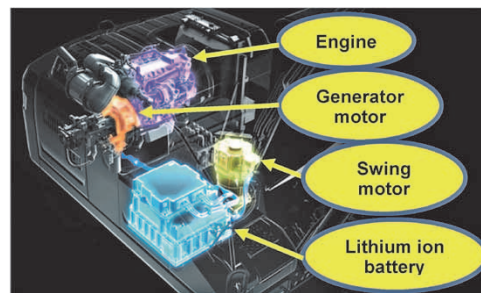


Fig.1 Overview of main hybrid equipment

Hydraulic excavators and mobile cranes, which are indispensable for various construction work, are constantly evolving to improve work efficiency, surrounding environment, operability, safety, etc. This issue introduces the latest technology that enables this evolution.

Fig.1 shows the internal configuration of main equipment in a state-of-the-art hybrid excavator. The hydraulic pump is driven by the power of the engine and generator motor that is directly connected to the engine. The motor for swinging the body is electrically activated and is separated from the hydraulic circuit, and the regenerative energy during swinging deceleration is converted to electric energy. This state-of-the-art hybrid excavator is equipped with a high-output, large-capacity lithium ion battery, for the first time in the industry, such that the engine is continuously assisted by the generator motor to enable the excavator's swinging body, with large inertia, to be accelerated and decelerated.

Feature- II : Utilization of ICT

Use of Information Communication Technology (ICT) to Stabilize Production and Strengthen Competitiveness

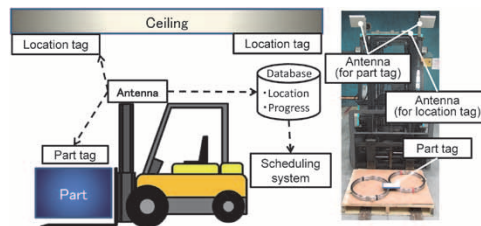


Fig.2 Logistics management system

With the recent advancement and prevalence of information communication technology (ICT), Kobe Steel is strengthening its "MONODZUKURI" (art of design and manufacturing) capabilities by actively incorporating the latest ICT technologies into its manufacturing processes and products. This special report introduces the company's efforts towards more stable production and enhanced competitiveness by utilizing ICT in the production processes at its factories, mainly characterized by multi-product production, as well as in its existing products.

Fig.2 is the logistics management system of Takasago Machinery Plant where various parts of industrial machines including compressors and resin mixers are processed. The RFIDs attached to the parts and the ceiling are read by the antenna mounted on the forklift to accurately manage the positions of the parts in real time. The smooth logistics flow realized by this system is contributing to the improvement of productivity.



Fig.3 Welding support system "AP-SUPPORT™"

Fig.3 shows a welding robot system equipped with software (ARCMAN™ Production Support) newly developed by Kobe Steel. This system enables data, being generated in production, to be automatically stored in industrial PCs for management and operation in the office through the Ethernet. Moreover, a network camera connected to the system allows the monitoring of welding conditions, which can lead to improved productivity and tact time.

<Cover photos>

[Feature- I (upper)] The photographs on the cover show hydraulic excavators. Innovative technologies of Kobe Steel Group are utilized in its construction machines including excavators, such as a hybrid hydraulic excavator, which is the flagship product representing Kobelco's low fuel consumption products, and environmental recycling machines, which are pioneering the industry.

[Feature- II (lower)] The photographs (background) of the cover show Kakogawa Works (left side) and Takasago Machinery Plant (right side) of Kobe Steel, where a wide variety of materials and machine products are produced. Since the beginning of the operation, the production systems of these factories have been constantly evolving, including the application of technologies introduced here, to meet customer needs.

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